WHO CHRONICLE

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WORLD HEALTH ORGANIZATION

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THIRTEENTH WORLD HEALTH ASSEMBLY—1

The Thirteenth World Health Assembly, held in Geneva from 3 to 20 May 1960, was attended by delegations from most of WHO's Member States, as well as representatives of the United Nations, specialized agencies and international non-governmental organizations in official relations with WHO.

In his opening address, the outgoing President, Sir John Charles, Chief Medical Officer at the Ministry of Health, London, expressed sympathy with those Member States which had suffered major catastrophes during the previous year:

"Two of these catastrophes were due to the forces of nature and one was, unhappily, the consequence of human frailty. In remembering them, however, we can take pride in the part played by this organization —along with other organizations—in bringing succour and aid to the victims, and advice and guidance to the afflicted Member States."

Sir John Charles then referred to "those other activities of the World Health Organization, both present and potential, which have grown out of the imagination of men, which reason has put into proper shape and form for action, and which the will of Member States working through the Organization will bring to final accomplishment." He went on to speak of the "six types of ignorance, or failure to use existing knowledge" which, according to the 13th-century philosopher and scientist, Roger Bacon, were prevalent among doctors:

"The first ignorance of which he complained was ignorance... of foreign languages, so that the physician was often unable to read of new discoveries.

"The second field of ignorance concerned the physician's lack of knowledge of the drugs he used, of their names even, of how they could be standardized or prepared, and, above all, of what they cost.

"The third fault was that physicians were too fond of wandering and futile discussions which were not based on experience.

"The fourth defect concerned their lack of interest in astrology and consultation with the stars, because without such assistance Bacon thought that the physician would be much more dependent on chance and good fortune.

"The fifth field of ignorance was the great neglect of chemistry, and of agriculture. Chemistry, he was certain, would one day disclose the nature of the materials out of which the body is made, and agriculture—the knowledge of animal and plant life—would be equally helpful.

"His sixth and final source of ignorance was composite. It included dependence on the second-hand statements of other people, the distrust of individual, personal experience, and, finally, the failure to look for truth by the way of experiment. And there Bacon sets out clearly and plainly the need for research into the field of knowledge which is concerned with health, and the prevention and treatment of disease. The verification of facts, the gathering together of ascertained and proven facts, the co-ordination of inquiries, the filling in of the gaps in human knowledge—the communication and spread of knowledge—these are the great objectives of medical and scientific research.

"And looking back at Roger Bacon—more than six hundred years ago—and at the present time, and peering into the future, we can see how many of WHO's activities are directed to remove these old and very long-lived ignorances. The multilingual publications of WHO, its seminars, so organized as to prevent futile and fruitless discussion, its standardization of therapeutic substances, its links with FAO and UNICEF over food and nutrition, and its pursuit and encouragement of research—all these fulfil the hopes of Roger Bacon. Only in the field of astrology do we seem to be lacking—and I leave that thought with the Director-General."

In conclusion, Sir John Charles stated that there were two main types of health problems at present: the largely environmental, nutritional and epidemiological problems which confront certain groups of Member States, and the health problems of middle-aged and elderly populations in others. WHO was concerned both with the extension of life of the middle-aged and elderly and with providing a "life to be lived and enjoyed in all its fullness by the millions of children who are with us now, and who will be added to our numbers—whose destiny it is to inherit the earth".

Other speakers at the opening meeting included Mr Georges Palthey, Deputy Director of the European Office of the United Nations, who said that public health was so closely linked with economic and social problems that it was difficult to conceive of progress in either field without progress in the other. For this reason there were many joint programmes between WHO and the United Nations, which were, however, linked not just by such programmes but by a deep identity of thought and purpose.

The economic importance of health was also stressed by the third speaker, Mr Mekki Abbas, Executive Secretary of the UN Economic Commission for Africa, who spoke of the economic loss incurred by the Sudan in the winter of 1950-1951, when a high percentage of cotton-pickers in the Gezira area were incapacitated by a malaria epidemic. The yield and prices were high, and the loss was estimated to be in the region of £3 000 000, a large sum of money for a small country to lose. The Economic Commission for Africa believed in good health for economic development and therefore felt confident that co-operation with WHO was most important. Mr Abbas referred to a problem now faced by newly independent countries in Africa: the return to their home countries of a substantial number of expatriate civil servants and doctors, leaving an embarrassing shortage of trained public health workers. In this connexion, he considered that help might be given by the metropolitan countries formerly responsible for the administration of the newly independent territories, as well as by WHO.

By acclamation the Assembly elected Dr H. B. Turbott, Director-General of Health of New Zealand, as its President. The following were unanimously elected Vice-Presidents: Dr Y. Ben Abbes (Morocco); Professor R. Baranski (Poland); Dr J. M. Baena (Colombia). Dr M. K. Afridi (Pakistan) was elected Chairman of the Committee on Programme and Budget, and Dr M. E. Bustamante (Mexico) Chairman of the Committee on Administration, Finance and Legal Matters.

Following the elections, the new President read a message from Mr N. Krushchev, Chairman of the Council of Ministers of the USSR:

" On behalf of the Government of the Union of Soviet Socialist Republics I am sending my best wishes to the participants of the Thirteenth World Health Assembly.

" The Soviet Government attaches grave importance to the activities of the World Health Organization, which is faced with the noble task of promoting the improvement of health of the people the world over.

" Nowadays the rational utilization of the achievements of the genius of man in the realm of science, culture and engineering can be instrumental in bringing about considerable success in the field of health protection of the people.

" Great achievements have been scored in the Soviet Union in the improvement of the health of the population due to the steady rise in its material and cultural well-being as well as through giving medical help free of charge.

" The Soviet Union is also doing all in its power to promote international co-operation in the field of health and will render all possible assistance in the realization of the World Health Organization activities aimed at the further development of this co-operation.

" The health workers, through the medium of their profession, are well aware of suffering inflicted on human beings by wars. They should, therefore, understand especially well that the most important and indispensable condition for fulfilling the tasks of the World Health Organization is the achievement of a lasting peace on earth.

" This is why I am deeply convinced that the Thirteenth World Health Assembly will make its contribution to the protection of the sacred cause of strengthening universal peace which is possible solely through general and complete disarmament.

" Allow me to express the hope that the Assembly will take important decisions directed at the further expansion of international co-operation in the interests of protecting the health of mankind.

" I warmly wish success to the work of the Assembly and all its participants."

In his inaugural address, Dr Turbott spoke of how the idea of world health had gained ground since the early days of WHO:

" Developing and developed nations have sat together round the Assembly table. In our early years there was impassioned oratory from the former on the obligations of the latter to do more and more. Participation in the planning for themselves brought realization of responsibilities. Although their own

problems may have been unresolved, assistance within their competence was soon being offered to others. Slowly an international team consciousness grew and blossomed, enabling our Organization to go from strength to strength. New nations joining us find themselves entangled in this constructive co-operation. As for others in our early years, it may take some time for them to realize that membership combines the act of taking with the art of giving, and that every Member State will become involved in the team work of helping others."

Dr Turbott then spoke of the " new and growing challenges " with which the Assembly would have to deal in discussing the programme for 1961: control of pestilential diseases, intensification of medical research, protection against radiation hazards, the recrudescence of venereal diseases, the adaptation of tuberculosis programmes to domiciliary chemotherapy, the evaluation of live poliomyelitis vaccine, the provision of safe water supplies, extended nutrition programmes and studies, and the world shortage of medical teachers and competent health personnel. There were also the problems of particular concern to the more developed countries: chronic illness, heart, cancer and mental troubles, adulterated foodstuffs. There was one other field to which Dr Turbott considered WHO should devote more attention: the integration of preventive and curative services.

" True, [WHO] has held technical discussions on the role of the hospital in the community, and has come up with helpful reports thereon. True, where assistance through WHO has been given to developing countries in Asia, Latin America and Africa, the end result has usually been the administration of medical services by the health authority, services well integrated as regards curative and preventive aspects. Yet this is still a pattern difficult of achievement in developed countries, though the trend is there even in countries most tied to free enterprise. No sensible person conceives that one integration pattern can suddenly be possible for all the world. Yet that world is experimenting, continuing in free enterprise, or in social insurance, or public assistance, or universal service schemes, with a general movement discernible from social insurance to universal service. The World Health Organization, as the supreme health authority, could interest itself more in the problems of social medicine, and throw out guide lines leading to integrated preventive and curative services . . . The more the general practitioner, the hospital doctor, and the preventive medical officer combine and work together towards commonly accepted objectives, the quicker the attainment by all peoples of the highest possible level of health."

Admission of new Members and Associate Members

The Assembly admitted eleven new Members and Associate Members to WHO, bringing the total membership up to 101. The new Members are: Cameroun, the Sheikhdom of Kuwait, and the Republic of Togoland. The new Associate Members are Cyprus, sponsored by the United Kingdom, and seven republics at present part of the French Community: Central African Republic, Republic of the Congo, Gabon Republic, Republic of the Ivory Coast, Federation of Mali, Republic of the Niger, and Republic of Upper Volta. A number of delegates offered greetings to the newly elected Members and Associate Members. The chief delegate of Ghana spoke of the increasing number of African States and the greater opportunities for international co-operation afforded by their membership of WHO.

Report of the Director-General

Presenting his report on the work of WHO during 1959,[1] Dr M. G. Candau, Director-General of WHO, expressed his satisfaction at the admission of a number of new Members and Associate Members to the Organization, but regretted that, so far, the last three inactive members—the Byelorussian SSR, Hungary and the Ukrainian SSR—had not yet found it possible to take advantage of the terms offered by the Ninth World Health Assembly to resume active participation in the Organization's work. Dr Candau then went on to deal with the question of malaria eradication which he considered to be " the most serious problem the Organization is facing today and will continue to face in the years to come ". His statement on this subject will be found on page 264.

An account of the discussions on the Director-General's report will appear in the next number of the Chronicle.

[1] *Off. Rec. Wld Hlth. Org.*, 1960, 98

NEW MEMBER AND ASSOCIATE MEMBER STATES OF WHO ON THE CONTINENT OF AFRICA

New Members

New Associate Members

Cameroun—*Area : 143 415 square miles. Population : 3 187 000. Capital : Yaoundé (pop. 32 000).*

Republic of Togoland—*Area : 20 404 square miles. Population : 1 085 200. Capital : Lomé (pop. 39 200).*

Central African Republic—*Area : 238 000 square miles. Population : 1 130 000. Capital : Banguy (pop. 77 000).*

Republic of the Congo—*Area : 139 000 square miles. Population : 760 000. Capital : Brazzaville (pop. 99 000).*

Republic of the Ivory Coast—*Area : 127 520 square miles. Population : 2 482 000. Capital : Abidjan (pop. 127 000).*

Gabon Republic—*Area : 102 290 square miles. Population : 403 000. Capital : Libreville (pop. 20 000).*

Republic of Upper Volta—*Area : 106 011 square miles. Population : 3 472 000. Capital : Ouagadougou (pop. 32 000).*

Republic of the Niger—*Area : 458 976 square miles. Population : 2 400 000. Capital : Niamey (pop. 20 000).*

Federation of Mali (comprising Republic of Senegal and the Sudanese Republic)—*Area : 539 584 square miles. Population : over 6 000 000. Capital : Dakar (pop. over 250 000).*

Budget for 1961

An effective working budget of $18 975 354 for 1961 was approved. This sum is higher than that originally proposed by the Director-General, the additional items being $200 000 to finance supplementary assistance for new Members and Associate Members and newly independent or emerging states, and almost $206 000 for the extension of the use of Russian in WHO publications.

Malaria eradication

A report on the development of the malaria eradication programme was discussed at length. Based mainly on replies to a questionnaire sent to WHO by governments at the end of 1959, the report included a number of tables showing the status of the various antimalaria programmes in operation throughout the world. Introducing it, Dr P. M. Kaul, Assistant Director-General of WHO, noted with satisfaction that most of the countries where malaria was endemic now have, or are preparing to have, eradication programmes. Since the world-wide attack on malaria is limited in time, it may be more adversely affected by staffing shortages than any other health programme. Over 1000 million people still live in the malarious areas of 133 different countries or territories, but the national professional staff fully employed in eradication programmes amounts to not more than one to every 700 000 people at risk. The most severe shortage is of sanitary engineers and epidemiologists, though some countries are making good use of lay volunteers for case finding.

Dr Kaul stressed the need for very careful preliminary planning and geographical reconnaissance so that spraying programmes may be completed efficiently and within the specified time. These programmes are sometimes hindered by operational difficulties, but despite this at least 100 million houses were sprayed with some 50 000 tons of insecticide during 1959. Where residual spraying alone cannot interrupt malaria transmission, mass drug administration is being attempted in pilot areas. The large-scale distribution of medicated salt (Pinotti method) has started in the Amazon valley of Brazil. This method is now being utilized in a trial area in Netherlands New Guinea, and further trials are being planned elsewhere.

The discussion covered a wide range of technical and administrative questions, e.g., the need for improving procedures for epidemiological evaluation, research requirements, whether eradication programmes should be autonomous or part of the public health services, and the best and most economical means of carrying out the work. It was suggested that WHO might provide guide books on methodology and the training of personnel, and that information should be made available on malaria vectors present at international airports.

The Assembly noted that satisfactory progress had been made in the world-wide malaria eradication campaign and, "recognizing that it is important to keep constantly in mind the essential element of urgency in malaria eradication programmes which must be time-limited programmes", urged governments "to intensify their efforts for the training and provision of adequate technical and administrative personnel" and "to accord to their national malaria eradication programmes the priority needed for the successful completion of the campaign within the shortest period of time". Governments were asked to keep WHO regularly informed of the progress of their campaigns and in particular of their epidemiological assessment activities. The Director-General was asked to continue to provide the necessary technical advisory services, and "to establish an official register listing areas where malaria eradication has been achieved, after inspection and certification by a WHO evaluation team".

The Assembly also noted that, in many cases, malaria eradication was reducing the incidence of other vector-borne diseases. Governments were therefore asked to consider supplementary measures which might consolidate this advantage, and it was recommended that the Director-General provide specialized staff and consultants to advise governments on this matter.

As of 30 April 1960, the total contributions received or pledged since the establishment of the Malaria Eradication Special Account amounted to $12 124 702, of which over 90% was contributed by the United States of America. The balance remaining after deduction of the expenditure for 1957, 1958, and 1959 fell short by $797 760 of the amount required to finance operations planned under the Account for 1960, and by $7 228 098 of the amount required to finance operations planned for 1960 and 1961. The total number of countries which had made or pledged contributions was 45, of which 14 had pledged or contributed more than once. While the situation had improved somewhat in recent months, many countries contributing or pledging greater amounts than before, it was still unsatisfactory.

The Assembly considered that " a stage has definitely been reached when the financing of the Organization's eradication programmes through the Malaria Eradication Special Account on a voluntary basis will no longer be possible without the full support of all the economically more privileged countries of the world ", noted that a number of countries had recently made or pledged bigger contributions, and expressed the hope that this example would be followed by others. It reiterated its appeal to Member States, and to foundations, industry, labour organizations, institutions and individuals to contribute to the Account, and decided to reappraise the situation at the next Assembly which, " should sufficient contributions not be forthcoming, should consider appropriate measures to ensure the financing of the programme ".

Smallpox eradication

Considerable progress towards the world-wide eradication of smallpox was made in 1959.[2] Full support for this programme was affirmed by a number of delegates, and details were given of the progress of campaigns in various countries. The danger of reintroduction of the disease was constantly emphasized during the discussions. The delegate of the USSR considered that progress in smallpox control was not sufficiently rapid and that WHO must give direct assistance to a number of countries in this field. As an example of outside assistance, he referred to a mass eradication campaign carried out in Iraq with help from the USSR; within a short time, 85% of the population had been vaccinated. Smallpox had been eradicated in the USSR since 1934, and, when a case was imported last year, immediate action was taken by the Government, approximately 10.5 million people in the Moscow area being vaccinated within 10 days. The Government of the USSR was prepared to consider supplying consultants and equipment to supplement WHO assistance to countries where the disease was still prevalent.

The Assembly emphasized the urgency of achieving world-wide eradication, and urged the health administrations of countries which had not yet started eradication campaigns to give the programme high priority. The Director-General was asked to continue to provide under the programme and budget for future years for assistance to national health administrations in organizing and developing smallpox eradication programmes.

Radiation health

The question of radiation health, including the protection of mankind from ionizing radiations, whatever their source, was discussed at length. A report presented to the Assembly by the Director-General reviewed the potential health hazards from ionizing radiation from natural and artificial sources, and gave information on work now being done on radiation protection by the various organizations concerned.

Three resolutions on this subject were proposed: one by the United Arab Republic delegation (which did not come to a vote) expressed the desire " to safeguard mankind from the possible hazards resulting from radiation of all kinds, including atomic fall-out ".

A second, submitted by the USSR delega-

[2] An article on this subject will appear in the next number of the Chronicle.

tion and later withdrawn, asked the Assembly to appeal for " the conclusion of an international agreement for the prohibition of atomic weapon tests ".

The third resolution, which was finally adopted, was sponsored by 21 Member States. It noted that WHO's responsibilities included protection from radiation hazards and the development of the medical uses of radiation and radioactive isotopes, and also that health authorities have a responsibility for the prevention and control of health hazards associated with radiation from all sources. The Director-General was accordingly requested to continue the constructive co-operation of WHO with the International Atomic Energy Agency (IAEA) and other appropriate agencies; to help Member States extend and develop the competence of health laboratories to deal with radiation and radioactivity, and to provide assistance to States without the requisite laboratory facilities; to place special emphasis on the teaching and training of technical personnel within Member countries; and to encourage and assist national health authorities to accept their major role and accelerate their activities in this field.

Several of the delegates sponsoring the resolution stated in the discussions that they were opposed to the experimental testing of atomic weapons, but felt that this was a political matter which should be, and was being, dealt with by the United Nations. They urged that WHO should confine itself to those technical questions relating to health which remain outside the field of politics.

Intensified programme of medical research

The first meeting of the Advisory Committee on Medical Research was held in October 1959, and reviewed the proposed 1960 and 1961 medical research programme. It did not recommend any particular priorities in subjects for research since it felt that these were already determined by the evolution of WHO's programme. Nevertheless, it considered that within certain broad subjects—e.g., tuberculosis, cancer, and cardiovascular diseases—high priority should be given to services to research, such as standardization, establishment of reference centres, and training of research workers.

The Assembly endorsed the action taken by the Director-General to implement the research programme, and recommended that " governments give due attention to the development of the sciences basic to medical research and to the training of professionals in these basic medical sciences ". The Director-General was also asked to stress this type of training in the programme.

Membership of the Executive Board

The following six States were elected as Members entitled to designate a person to sit on the Executive Board: Argentina, Ghana, Jordan, Republic of Korea, Thailand and the United Kingdom. The twelve other members of the present Executive Board are persons designated by the following countries: Brazil, France, Guatemala, Iran, Ireland, Luxembourg, Nepal, Peru, Sudan, USSR, Venezuela and Viet-Nam.

Forty-four Member States had ratified the amendment to the Constitution increasing membership of the Executive Board from 18 to 24. As this amendment cannot come into force until it has been accepted by two-thirds of the Member States, those which had not yet ratified it were urged to do so, if possible before the Fourteenth World Health Assembly.

Headquarters accommodation

The Assembly authorized the construction of the new Headquarters building in Geneva (see article on page 272), and asked the Director General to conclude the necessary arrangements with the Swiss Confederation and the Canton of Geneva, and to arrange for the contracts with the architects, builders, and suppliers. Governments of Member States, foundations, institutions, other agencies, and individuals were asked to consider making voluntary contributions to the Headquarters Building Fund, as well as gifts of furnishings, decorations and equipment.

During the Assembly, the Ghana delegation announced a voluntary contribution of £1000 from its Government to the Fund.

World Health Year

The question of holding a World Health Year was once more discussed. This idea originated in a proposal by the delegation of the Ukrainian SSR to the General Assembly of the United Nations, which subsequently invited WHO to organize an observance of this nature to be held preferably in 1961. This invitation and an associated proposal by the Government of the USA were discussed by the Twelfth World Health Assembly, at which opinion on the subject was sharply divided. It was therefore decided to reconsider the matter at this year's Health Assembly. In the meantime, the Director-General asked Member States and the Regional Committees to give their opinions, and those received were assembled in a report presented to the Assembly.

A majority of the speakers on this subject considered that the time was not propitious for WHO to undertake a venture of this kind when money and personnel were urgently needed to carry out both current and planned health projects. The Assembly considered that the efforts and expenditure involved in the holding of a World Health Year were unlikely to be commensurate with the benefits that might be derived from it, and that they would be better used for a critical review and evaluation of the current programme and projects. It was therefore recommended that the holding of a World Health Year be postponed indefinitely.

Disarmament and funds for health

The Assembly examined an invitation from the United Nations General Assembly, asking States "to consider the possibility of devoting, out of the funds made available as a result of disarmament, as and when sufficient progress is made, additional resources to the improvement of living conditions throughout the world and especially in the less developed countries". While expressing the hope that current negotiations might lead to greater progress towards the attainment of disarmament under effective international control, it considered that, until this progress had been made, "it would be premature to study the question of the utilization of any resources released thereby". It also affirmed its belief "that international co-operation in the furtherance of the objectives of the World Health Organization should not pause in its efforts while waiting for such disarmament".

Voluntary Fund for Health Promotion

The Assembly decided to establish a Voluntary Fund for Health Promotion, amalgamating existing special accounts with the exception of the Malaria Eradication Special Account. The following sub-accounts are thus included in the Fund: General Account (for undesignated contributions); Special Account for Smallpox Eradication; Special Account for Medical Research; Special Account for Community Water Supply.

Relations with the League of Arab States

The Assembly approved the principle of concluding an agreement between WHO and the League of Arab States for co-operation in the field of health, and asked the Director-General to take the necessary steps to this end.

Publications in Russian

It was decided to extend the use of the Russian language in certain WHO publications, the extension to take place gradually over a period of three years, beginning in 1961.

Establishment of national public health cadres

The Assembly recommended that governments establish career appointments for

public health personnel, and that WHO give whatever assistance it can in this connexion.

Technical discussions

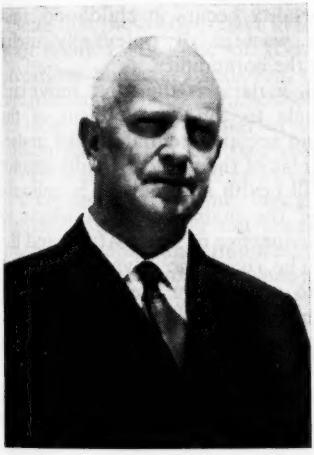
The technical discussions at the Assembly were on "The Role of Immunization in Communicable Disease Control". A summary of these discussions will appear in the next number of the Chronicle.

Fourteenth World Health Assembly

The Assembly accepted the invitation of the Government of India to hold the Fourteenth World Health Assembly in New Delhi in February 1961, and expressed appreciation of the Government's offer to meet $250 000 of the extra costs of holding the Assembly so far away from Headquarters.

Dr H. B. TURBOTT

President of the Thirteenth World Health Assembly



The new President of the World Health Assembly, Dr Harold Bertram Turbott, I.S.O., M.B., Ch.B., D.P.H., was born in 1899 in Auckland, New Zealand, and studied at the Medical School, University of Otago, Dunedin. After working in China and on the staff of the University of Otago Medical School, Dr Turbott joined the New Zealand Department of Health, in which he has served as Director of Child Hygiene, Deputy Director-General and, since last year, as Director-General. He has been responsible for many innovations which are now standard practice in the New Zealand public health services and, under the auspices of the Medical Research Council of Great Britain, has conducted an investigation into the health of the Maoris. He has been associated with WHO since its earliest days and has been a regular member of the New Zealand delegations to the various World Health Assemblies, besides representing his country on the WHO Executive Board from 1952 to 1955. In 1959, he served as Chairman of the Programme and Budget Committee of the Twelfth World Health Assembly. He is also New Zealand representative on the WHO Regional Committee for the Western Pacific, on the Research Council of the South Pacific Commission, and on the South Pacific Board of Health.

MALARIA ERADICATION: A CRITICAL STAGE

Presenting his report on the work of WHO in 1959 to the Thirteenth World Health Assembly, Dr M. G. Candau, Director-General of the Organization, stated that the world-wide malaria eradication campaign "has now clearly reached a critical stage which requires urgent action on the part of this Assembly". He went on to speak of the main reasons which had prompted the decision of the Eighth World Health Assembly in 1955 to launch this WHO programme, and of the present position. Dr Candau's statement is reproduced below.

The obvious purpose of the malaria eradication campaigns, as of the control projects which preceded them, is of course a humanitarian one; the will to put an end to the hardship and misery of hundreds of millions of people affected by this most widespread of the communicable diseases, and to ensure adequate protection for those who are still exposed to this infection. In the light of the increasing resistance of insects to insecticides —the very factor which was mainly responsible for the adoption of eradication as the only valid approach to the problem of malaria—no country, however safe it may appear now, can be considered fully protected from the disease. Indeed, in the past malaria had completely disappeared from many lands only to reappear later in explosive epidemics. And, if it is true that our counter measures are today much more effective than ever before, it is also true that the increasingly rapid and voluminous international transport and travel of our time considerably intensify the danger of reintroduction of malaria into all the countries where the mosquito vector is present.

But humanitarian and health considerations—strong as they are—were not the most important arguments which determined WHO to spare no effort and to make every sacrifice to reach the goal of world-wide eradication of this disease. In addition to being the most nearly universal, malaria is also the most costly among the communicable diseases. The economic loss exacted by it defies calculation, even in the last decade, when the rate of infection was reduced considerably. Indeed, malaria, as long at it remains endemic, will be responsible for heavy hospital costs; cause absenteeism; slow down the pace of production; and hamper education. It increases the death rate due primarily to other diseases; moreover, much malaria mortality occurs in childhood, thus causing the wastage of potentially useful members of the community.

Above all, malaria is the most important single obstacle to the development of the economic and social potentials of the underdeveloped areas of the world. Wealth cannot be built on ill health and malaria is undoubtedly one of the main causes of illness in most of the countries of Asia, Africa and the Americas. The economic advantages which are bound to result from the elimination of this disease were already envisaged by Ronald Ross. Speaking more than fifty years ago to the Liverpool Chamber of Commerce, he made that truly visionary statement: "It may even happen that such a wild idea as killing mosquito grubs to prevent malaria may assist in giving to civilization the gift of another half of the world: the tropics. We never know, when we plant one of the seeds of science, into how great a tree it may grow some day."

So much for the main reasons why malaria, considered as a first priority in WHO's programme since its very inception, has also become the principal target of the Organization's health promotion policy, and why, at this Assembly, we must face the challenge it presents to the world as a whole. In order to facilitate the study of this issue, I should now like to recall the very premises on which the decision taken in 1955 was based, and the

conditions which, as we all agreed, had to be met if the eradication of the disease on a world-wide level was to become a reality—before anopheline resistance to insecticides became widespread, thus jeopardizing the gains achieved in the preceding fifteen years.

As for all programmes supported or initiated by WHO, the first essential condition in this fight against malaria is the wholehearted participation of the individual countries concerned. In 1955 we expected that the governments of all countries and territories affected by malaria would mobilize their maximum available resources to this vast eradication work. We also hoped that they would take maximum advantage of all available assistance, which should be given to them to the extent required. Let me say at once that these hopes have in large measure been fulfilled. In spite of their very often precarious budgetary situation, the countries undertaking malaria eradication managed, in 1958, to spend a total of close to $80 million and, in the last two years, this rate of expenditure has further increased. What is even more significant, many, if not all, the countries carrying out eradication programmes realize the importance of international co-operation, and many examples of the granting of frontier facilities and of the prompt and free exchange of information on the malaria situation are being reported from various parts of the world. Among at least one group of countries, an international agreement provides for mutual aid, in case of need, by the transfer of personnel, equipment and stores from one country to another on request and at cost price.

This bright side of the picture can be enhanced by describing the successful way in which WHO, in my opinion, has discharged the principal responsibility assigned to it in 1955, to provide leadership in determining the over-all strategy for world-wide malaria eradication. You will see that our antimalaria work has greatly profited from the experience the Organization has accumulated as a result of the many international health projects it has carried out since the days of the Interim Commission.

Thus, for instance, with the assistance of expert committees and panels, the whole strategy of malaria eradication is under constant study and review. The problem of resistance is studied and attempts are made to solve it; standard specifications of insecticides and pesticides are issued periodically to all countries. Other functions of WHO are the standardization of equipment and its improvement, and the study and prevention of the toxic hazards of insecticides and pesticides. In addition to that, the Organization has during the past year greatly increased its activities leading to stimulation, co-ordination and assistance to basic and applied research.

WHO's fellowship system, and the various means it has established for the education and training of medical and allied personnel, are being used to provide countries with the several different categories of staff they badly need for the planning and implementation of eradication campaigns. Internationally trained experts are indispensable in countries with an acute shortage of qualified technical personnel. But experience has also shown the great value of international advisers, even when adequate numbers of highly qualified national personnel are available. During 1959 there were close to four hundred technical advisers from WHO and the Pan American Health Organization working for national or regional projects.

While WHO sometimes provides supplies and equipment also, its main function remains that of showing each individual country how it can best establish the essential conditions for eradication operations to be carried out effectively and quickly. Indeed, sound planning, adequate financing and appropriate legislation are indispensable to support the technical work; there must be a strong national service devoted to this combined task, having well-trained personnel and sufficient administrative autonomy. Good public relations and effective public health education are needed at every level of society. Finally, in all these fields, national effort must be supported and supplemented by international assistance.

There is no doubt that the happy combination of national and international effort is

responsible for the very substantial success already obtained by the world-wide malaria eradication campaigns. By the end of 1959, out of a total of 1400 million people either affected by malaria or living in areas exposed to it, close to 280 million were freed from the threat of the disease. According to the latest information received at headquarters, 62 countries or territories, containing a population of 684 millions, are today fully engaged in eradication work. In 16 other countries or territories, inhabited by 127 million people, the health authorities are on the point of establishing final plans for eradication campaigns.

Another factor which augurs well for the future is the continued improvement of the co-ordination between inter-country and inter-regional projects. The annual report of the work of WHO in 1959 contains significant data on this subject.

On the debit side there have been, during the last four months, some new reverses. Small foci of resistance of *P. vivax* to pyrimethamine have now appeared in West Africa, in western Venezuela and in Netherlands New Guinea. The number of malaria vectors resistant to some residual insecticides had reached 22. During the first three months of 1960 resistance to dieldrin was reported in *A. albimanus* in Haiti and *A. sundaicus* in Indonesia.

The problem of the resistance of malaria vectors to insecticides is undoubtedly an obstacle to malaria eradication and has slowed down in some countries the progress of our endeavour. Nevertheless its importance should not be overemphasized, since experience shows that the obstacles created by the problem of resistance can be eventually overcome by technical developments. Administrative improvements are in many ways even more important, and this certainly is one of the conditions of final success.

On the other hand the unsolved question is that of indispensable funds for the international technical assistance and guidance. More than three-quarters of the cost of the eradication programmes is being borne by those countries which have to contend with malaria. The remainder is at present being borne by UNICEF, the Expanded Programme of Technical Assistance, other multilateral and bilateral agencies and, of course, by WHO. It had been hoped that, when the Health Assembly established the Malaria Eradication Special Account in 1955, WHO's share in the campaign would be financed by voluntary contributions to that Account. Unfortunately, as I have had to report on previous occasions, with the exception of the contribution of one country which alone has provided more than 90% of the funds available in the Special Account, actual contributions still continue to lag far behind good intentions and assurances of support. As a result, the Account is $7 million short of the amount needed for the activities planned for the period 1960-1961, and WHO finds itself in a difficult situation.

While there have in the past been suggestions from some quarters that greater resources for malaria eradication should be obtained from the various international sources of funds designed for economic and social development, I believe that in the present situation such ideas are unrealistic and not necessarily in the best long-term interests of the countries fighting malaria, nor of the World Health Organization itself. The World Health Assembly and the Executive Board have repeatedly reiterated the inseparability of health and social and economic factors in the development of the well-being of mankind. It is necessary to that well-being to maintain an appropriate balance in the activities of WHO and of the United Nations family as a whole. The eradication of malaria—as, indeed, any major improvement in the health of mankind—leads not only to greater individual health, but contributes most importantly to the availability of effective manpower for economic and other social developments. But that alone is not enough: that manpower needs to be utilized to its fullest extent and the healthy individual should be able to satisfy his basic aspirations if we are effectively to contribute to a happier and more stable world. To this end the United Nations family, including WHO, must be able to carry out its manifold responsibilities for assisting in the total social and economic

development to which we are all dedicated. The costs of one essential activity therefore cannot and must not encroach on the resources required for other, equally essential, activities.

We are, then, led to the conclusion that the responsibility for providing the necessary funds to finance the relatively small share of the costs of the malaria eradication programme for which the World Health Organization is responsible rests with the Organization itself, and with those of its Members better able to bear them. Developments in the past several months lead me to believe that we are fast approaching a critical point in our efforts to obtain funds from voluntary contributions to finance WHO's share of the costs of this great programme and that, unless we obtain the necessary voluntary contributions, the next World Health Assembly will need to examine and decide upon other solutions, including the possibility of adding the amounts required for malaria eradication to the regular budget of the Organization.

At the present rate of progress, malaria could be eradicated within the next ten years or so, at least from Europe, the Americas, North Africa and large parts of Asia. We must find the few million dollars which are needed to sustain the many national eradication programmes which are being constantly intensified. After this initial effort of the next few years, the remaining problem should be solved with resources provided in the regular budget of the Organization without disturbing the balance of our total programme.

International exchange of duplicate medical literature

On 1 February 1960 the Library of the World Health Organization initiated a new scheme for the international exchange of duplicate medical literature, which is open to all interested libraries irrespective of size or geographical location. It is intended to co-operate to the fullest possible extent with existing exchange schemes and to supplement the work already being performed at the national level. One of the chief principles of the new scheme therefore is that participating libraries should first clear their requests and offers through their national exchange centre wherever such a centre exists and is willing to co-operate.

The WHO Library will not handle the duplicate material but will act as a clearing centre for information, creating the necessary contact between the library requiring certain material and the library offering the same material for disposal. It will provide libraries with stencils for the preparation of book lists and transparencies for preparing slips indicating the periodicals required and offered. The book lists will be circulated to all participants, but the periodical slips will be photocopied and filed in a central card index in Geneva, enabling requesting libraries to be notified of appropriate offers. The participating libraries will then be expected to carry out the exchange transactions direct. No charges will be made, except of course the reimbursement of postage by the recipient to the donating library. It should be noted that this new scheme is not intended to deal with the regular exchanges established between current periodicals and other newly published material.

For further information interested libraries should apply to: World Health Organization, Library and Reference Services, Palais des Nations, Geneva, Switzerland.

THE PRICE OF HEALTH

" The task is a vast and difficult one. It is particularly challenging to the World Health Organization, because it seems clear that a public health programme adapted to the individual needs of each area offers the most economical method of breaking the chains of disease and poverty and initiating an upward cycle of social evolution. To accomplish the end in view, two things are necessary. The first essential is an analysis by each country—at whatever stage of health evolution it may be—of the most vital health problems which may be attacked with maximum results at minimum cost. The second essential is the development of co-operative programmes of technical assistance, in which the more fortunate areas may co-operate with those of less advanced development for the common goal of a healthful, prosperous, and peaceful world."

C.-E. A. WINSLOW *

How much money should be spent on international collaboration in public health ? Few, if any, of the questions that have regularly come before WHO's governing bodies since the foundation of the Organization have remained more stubbornly controversial.

At the Third World Health Assembly in 1950, Dr Karl Evang of Norway, the President of the previous Assembly, spoke for a number of countries when he pointed out that:

" If half, or one-third, or even one-tenth of the present scientific knowledge of medicine had been spelt out in terms of public health administrations, hospitals, sick insurance schemes, doctors, nurses and auxiliary personnel, in a proper production and distribution of drugs and insecticides, medical literature and equipment, the picture of the whole world would have been very different indeed from that which meets the eye today . . .

" The vast majority of the peoples of the world still live in bondage to disease and misery. Science knows the means to rapid improvement, and we know how to administer the proper health measures. We are not dreamers, but practical men. Nevertheless, a majority of the Member countries themselves voted a budget for WHO which is disastrously inadequate. Why has this situation arisen and why do we uphold it? I am not offering an explanation, because I know of none which would satisfy you and me."

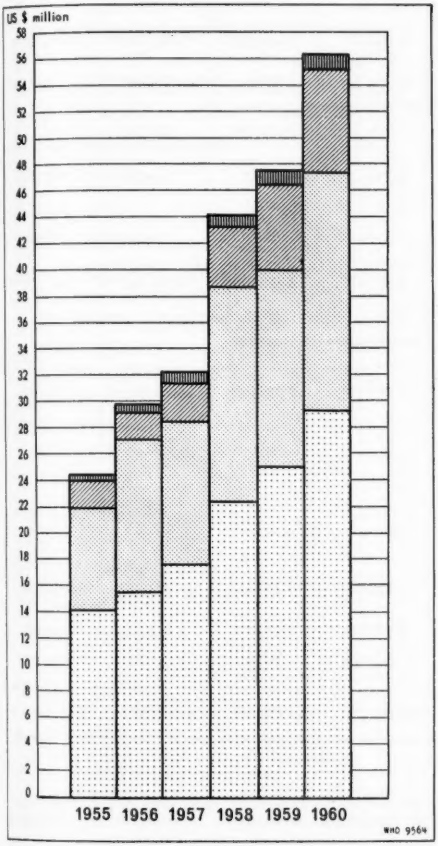
At the same Assembly, however, dissenting voices expressed concern lest the Organization attempt to cover too much ground superficially, and pointed out that it was essential to limit its activities to work that could only be done through international machinery or particularly lent itself to international action.

That international funds should be spent sparingly, and primarily to help countries face problems for which their own resources are inadequate, has been repeatedly emphasized by representatives of all governments and is one of the fundamental principles on which international work rests. But as programmes of assistance justified themselves by their results, more requests for aid of all types were submitted by governments to WHO indicating the need for yet more expenditure on international aid, and the budgets voted by the World Health Assembly increased from year to year. At the Eleventh World Health Assembly in 1958, the effective working budget proposed by the Director-General for the following year—embodying a substantial increase of some $721 000—was adopted, not after painful discussion, but by acclamation, for the first time in the Organization's history.

In 1960, the total amount devoted to international health programmes is expected to be over $56 million. Not all of this money is contributed by WHO, although a large portion is. The accompanying chart (Chart 1)

* *The cost of sickness and the price of health* (*World Health Organization Monograph Series*, No. 7), 1951, Geneva, pp. 9-10

CHART 1. TOTAL FUNDS DEVOTED OR EXPECTED TO BE DEVOTED TO INTERNATIONAL HEALTH PROGRAMMES FOR THE YEARS 1955-1960 FROM ALL SOURCES



Funds administered by WHO

Other Sources :

UNICEF (funds allocated or expected to be allocated for supplies and equipment)

PAHO (including Special Malaria Fund and special account for the community water supply programme)

Various

shows that UNICEF and PAHO also contribute large sums. UNICEF's close co-operation with WHO in international health programmes is derived from its concern with children, who must be of primary importance in nearly every health programme. PAHO, the Pan American Health Organization, is one of the earliest international health organizations, and its executive office, the Pan American Sanitary Bureau (PASB), acts as the WHO Regional Office for the Americas. The remaining funds devoted to international health programmes are provided by such agencies as the Organization of American States, the Institute of Nutrition of Central America and Panama, the Government of Argentina (for the Pan American Zoonoses Center), and the Government of Venezuela (for the Caracas Zone Office).

What is the money spent on? In order to ensure co-ordination and continuity, WHO prepares an integrated health programme in conjunction with the other agencies interested; this programme, for the years 1955-1960, is set out in Table 1. Some of the items listed in this table require a word or two of explanation. Malaria eradication is not part of the regular WHO budget. The Eighth World Health Assembly decided that WHO should provide technical advice, encourage research, and co-ordinate resources in a special programme having as its ultimate objective the world-wide eradication of malaria, and a special account was set up into which contributions from governmental and private sources could be credited. Similar special accounts have been set up for the planning of research—a study of WHO's role in research, and ways in which it might assist in stimulating and co-ordinating it; for medical research—extension of WHO's assistance in medical research programmes; and for a community water supply programme—a programme of self-evident value that would by itself go far to reduce the incidence of the diarrhoeal diseases in many of the less developed countries of the world.

In addition to the work carried out under its regular budget and under the various special accounts, WHO has also since 1951 looked after the health aspects of the general economic development programmes of the United Nations Expanded Programme of Technical Assistance for the Economic Development of Under-Developed Countries.

TABLE 1. THE INTEGRATED INTERNATIONAL HEALTH PROGRAMME, 1955-1960

	1955	1956	1957	1958	1959	1960
	US $	US $	US $	US $	US $	US $
1. Obligations incurred or expected to be incurred by WHO						
Regular Budget	9 275 300	9 982 794	12 091 421	13 959 238 *	15 482 290 *	16 918 700 *
Malaria Eradication Special Account	—	—	28 247	3 027 213	4 238 932	6 117 612
Special Account for Research Planning	—	—	—	54 790	245 210	—
Special Account for Medical Research	—	—	—	—	—	1 256 600
Special Account for Community Water Supply Programme	—	—	—	—	—	362 300
Expanded Programme of Technical Assistance	4 411 749	5 452 504	5 527 977	5 326 970 **	4 990 803 **	4 605 200 **
Costs reimbursed by UNICEF for projects jointly assisted by UNICEF and WHO	451 538	112 058	47 972	27 117	—	—
Sub-total	14 138 587	15 547 356	17 695 617	22 395 328	24 957 235	29 260 412
2. Expenditure incurred or expected to be incurred by other agencies						
Amounts allocated or expected to be allocated by the UNICEF Executive Board for supplies and equipment in projects jointly assisted by UNICEF and WHO	7 770 029	11 351 050	10 328 622	16 207 503	14 979 650	18 125 650
Pan American Health Organization ***	2 082 230	2 199 966	3 287 678	4 639 286	6 414 070	7 840 879
Other sources	456 034	698 428	690 389	866 056	1 083 492	1 144 478
Total	24 446 880	29 796 800	32 002 306	44 108 178	47 434 447	56 371 419

* Including the lump-sum allocation to WHO from the Special Account of the Expanded Programme of Technical Assistance towards the administrative and operational services costs of that programme now merged with the regular budget

** Including only costs of field projects

*** Including operations planned under Special Malaria Fund and the special account of PAHO for the community water supply programme in the Americas

The funds for this programme are derived from voluntary contributions paid by governments.

WHO's regular budget covers the cost of operating programmes outside those financed from the special accounts; the cost of organizing meetings of the World Health Assembly, the Executive Board, the expert committees, study groups, regional conferences, seminars and the like; and the cost of the administrative services. The relative percentage of each of these items for 1960 and 1961 is shown in Table 2.

The operating programmes take the greatest share of the regular WHO budget. They include services of general international interest (e.g., the collection and analysis of world epidemiological information, the develop-

TABLE 2. DISTRIBUTION OF ORDINARY BUDGET 1960 AND 1961

Purpose of expenditure	Percentage of total		
	1960	1961 *	
		(a)	(b)
	%	%	%
Part I—Organizational Meetings	2.82	2.66	2.73
Part II—Operating Programme			
Programme Activities	56.99	56.23	57.79
Regional Offices	10.74	10.04	10.32
Expert Committees	1.29	1.12	1.15
Other Statutory Staff Costs .	18.63	18.16	18.66
Total—Operating Programme	87.65	85.55	87.92
Part III — Administrative Services			
Administrative Services . . .	7.54	7.06	7.25
Other Statutory Staff Costs .	1.99	2.04	2.10
Total — Administrative Services	9.53	9.10	9.35
Part IV — Other Purposes			
Headquarters Building Fund.	—	2.69	—
	100.00	100.00	100.00

* (a) Inclusive of Part IV — Other Purposes
(b) Exclusive of Part IV — Other Purposes

ment of international standards relating to various aspects of health, the drawing up of international sanitary regulations), and direct services to governments.

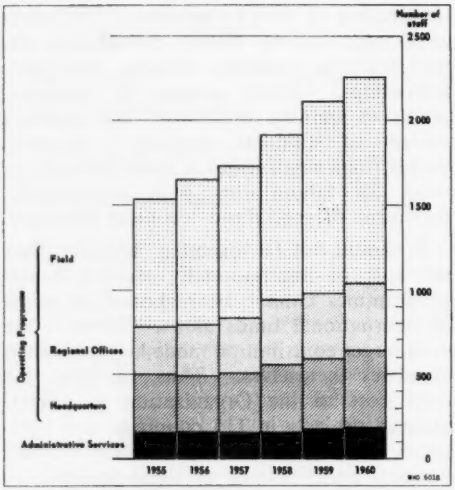
Services to governments aim at strengthening national services by the encouragement of long-term health planning, research, evaluation of the health work being done, and professional and technical education of national health personnel. Assistance is not offered to governments; they must themselves ask for it. Nor is it given unconditionally. In any project in which WHO provides assistance, the government concerned must maintain administrative control, furnish counterpart and other personnel, and make provision for the continuation of the project on the termination of WHO assistance. The assistance takes various forms: consultants, demonstrations, training courses, seminars, fellowships, visiting groups of scientists, grants to training institutions and research centres to stimulate productive research, supply (on a small scale) of specialized equipment for laboratories, and, occasionally, provision of specialized technical literature.

It should not be forgotten, however, that the cost of internationally assisted health programmes cannot be reckoned in terms of international funds alone. There is the even larger contribution made by the assisted countries themselves. Thus, in 1958, the total cost to the Organization of WHO-assisted projects in 115 countries and territories was $13 141 000; the counterpart national contributions to these projects, as reported by recipient governments, exceeded $75 000 000. In many cases, the national contributions would not have been available but for the stimulus of international assistance. In this connexion, Dr H. B. Turbott, President of the Thirteenth World Health Assembly, stated in his presidential address:

> "As national health men we all experience the frustrations inherent in national control of finance, where competing interests delay that progress in national health which we see so clearly could be achieved so quickly if only we had the means. Enter the World Health Organization, with its supplemental offer of the merest modicum of finance, but of real substantial help in the planning, training, and action aspects of programmes for health betterment. From this stimulation—for that is all it is—stems our success. The country being helped responds, participates in greater degree than previously thought possible by its Government, is caught up in teamwork with other countries to safeguard its newly envisaged achievement . . ."

The variety of tasks entrusted to WHO is carried out by a staff (which must necessarily increase as the work increases), scattered over the four corners of the globe—at Headquarters in Geneva, in the six regional offices, or in the field. Chart 2 shows the composition

CHART 2. TOTAL AUTHORIZED POSTS FOR THE YEARS 1955-1960



of this staff and the increase that has taken place in the past five years. It must be remembered that included is staff engaged on malaria eradication and other special projects, as well as work for the Expanded Programme of Technical Assistance.

This year, the Thirteenth World Health Assembly adopted an effective working budget of over $18 975 000 for 1961. Most of this sum is made up of contributions from the Members and Associate Members of the Organization. The overwhelming majority of these countries each contribute less than 1 % of the whole, though a few countries contribute a higher share : USA, 31.71 %; USSR, 12.48%; United Kingdom, 7.13%; France, 5.86%; Federal Republic of Germany, 4.88%; China (Taiwan), 4.59%; Canada, 2.85%; India, 2.25%; Italy, 2.06%; Japan, 2.01%; Australia, 1.64%; Sweden, 1.27%; Poland, 1.25%; Belgium, 1.19%; Argentina, 1.02%.

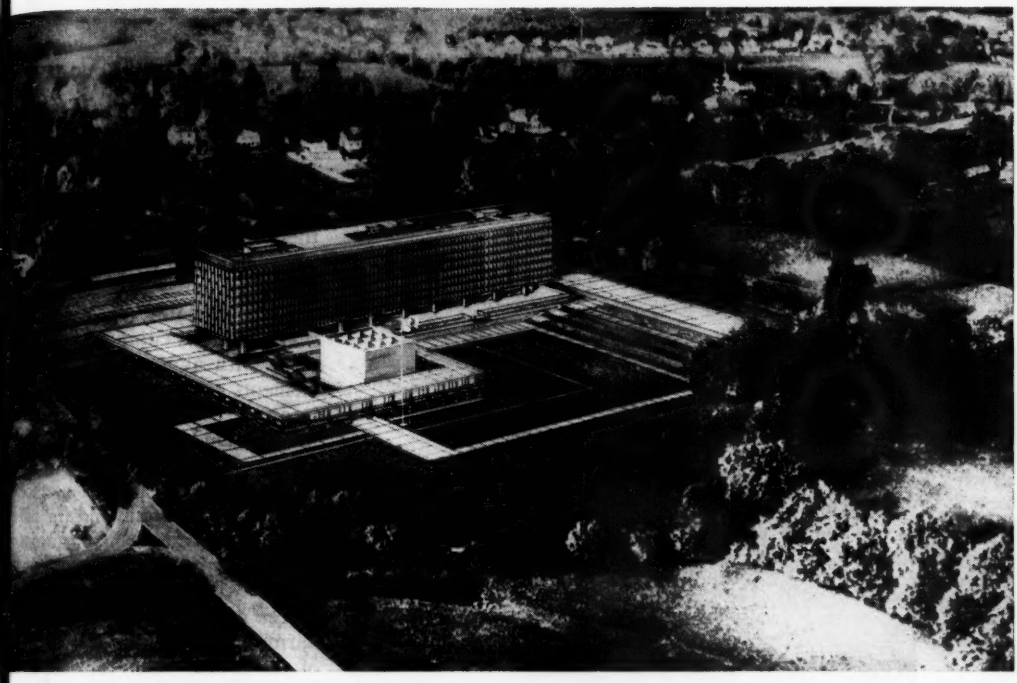
In addition, other funds administered by the Organization during 1961 are expected to amount to approximately $14 643 000. These sums will enable the Organization to continue its technical support to some 500 projects of all kinds in various parts of the world and to undertake a limited number of others in reply to requests from governments.

DESIGN FOR NEW WHO HEADQUARTERS

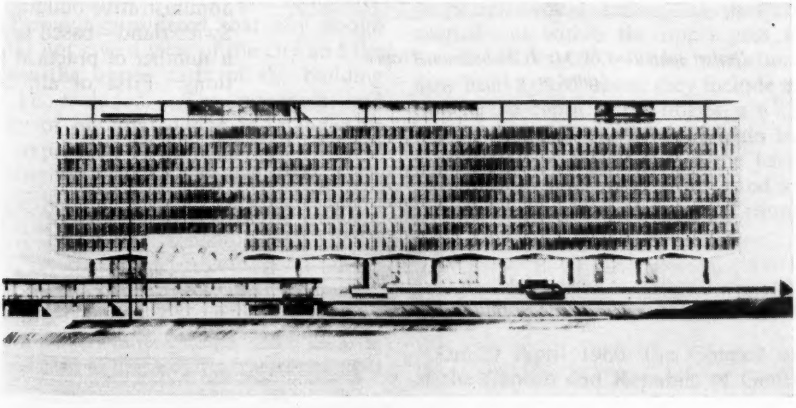
The international architectural competition for the design of a new WHO Headquarters building in Geneva [1] has been won by Professor Jean Tschumi of Lausanne, Switzerland. The second prize of Sw. fr. 25 000 was awarded to Mr Eero Saarinen, of the United States, and the third of Sw. fr. 15 000 to Mr J. Dubuisson, of France. The design submitted by Messrs Viljo Revell and Co., Helsinki, Finland, received honourable mention. Fifteen leading architects from 12 countries had accepted the invitation to take part in the competition.

The jury for the competition met in Geneva, from 25 to 28 April 1960. It consisted of: Mr Sven Gottfrid Markelius, architect, Stockholm, Sweden; Mr Gio Ponti, architect, Milan, Italy; Sir Howard Robertson, architect, London, England; Mr Pierre Vago, Secretary-General of the International Union of Architects; Professor E. J. Y. Aujaleu, Chairman of the Executive Board of WHO; Mr Jean Dutoit, Conseiller d'Etat, Head of the Public Works Department of the Canton of Geneva; and Dr M. G. Candau, Director-General of WHO, who acted as chairman. In accordance with the rules of the competition, the designs were submitted to the jury anonymously.

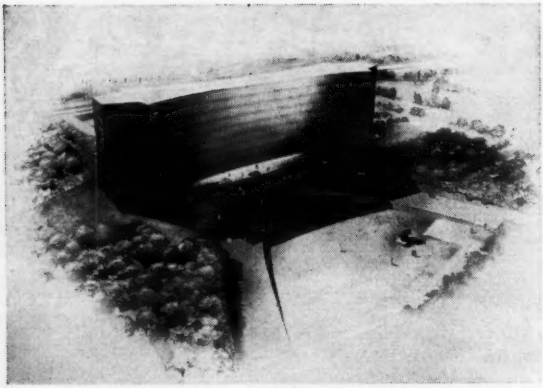
[1] See *WHO Chronicle*, 1960, **14**, 153.



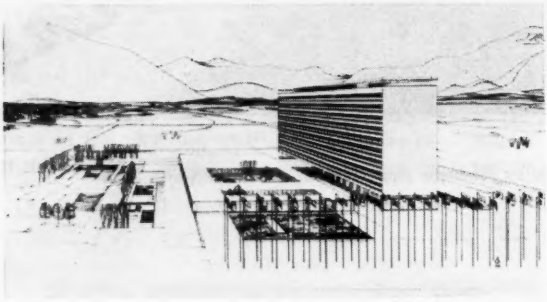
Model of the winning design by Professor Jean Tschumi, Lausanne, Switzerland.



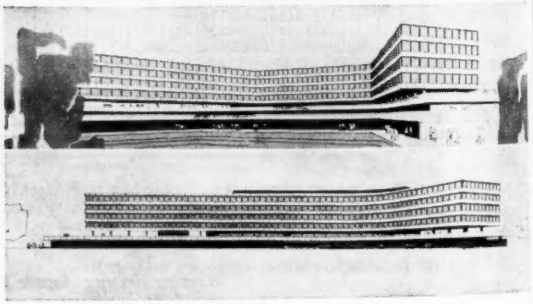
Winning design : façade facing the park.



Design submitted by Mr Eero Saarinen, United States (second prize)



Design submitted by Mr J. Dubuisson, France (third prize)



Design submitted by Messrs Viljo Revell and Co., Finland (honourable mention)

The prizewinning design

The prizewinning design consists of a ten-storey block with eight floors of offices, and a smaller contrasting block containing a council room. The council room overlooks a pool and a garden patio bounded on the other side by a porticoed wing housing the library and reading-rooms.

The "curtain" façade of the main block is composed of glass walls with aluminium sun-break elements on a framework of reinforced concrete covered with marble. On the ninth floor, there is a terrace, cafeteria and lounges. The ceilings of the offices will be soundproof, and the offices will have moveable partitions.

In the council room block and library wing, the ceilings of the offices will be in a warm blue to harmonize with the white marble of the council hall. The interior of the council room will have its walls covered in various veneers.

Professor Tschumi—who recently won the Reynolds Prize, an important American architectural award, for the new Nestlé administrative building at Vevey, Switzerland—based his design on a number of practical considerations. First of all, he decided

Members of the jury in front of the winning design. From left to right: Sir Howard Robertson, Mr P. Vago, Mr A. Vierne (deputizing for Mr J. Dutoit), Dr M. G. Candau, Professor E. J. Y. Aujaleu, Mr S. G. Markelius.

that the distances between the two ends of the building, from the end offices to the meeting rooms, and from the mail distribution centre to the end offices should be as short as possible, and that there should be a limited number of lifts and staircases, grouped centrally for convenience. He discarded the idea of a building with two blocks at right-angles in which some of the staff members at work would be presented with a view of their colleagues in other offices. A building with an inner courtyard, closed or open on one side, was also considered undesirable because of the Geneva climate. More generally, Professor Tschumi considered that any design which did not give a view of the city and the lake from the upper parts of the building should be excluded. The openness and simplicity of his final design is intended to give an impression of calm.

Speaking over the Swiss short-wave radio service, Dr M. G. Candau, Director-General of WHO, commented on the winning project as follows:

"I personally think that Mr. Tschumi's plans have great aesthetic value; but practical considerations also guided the jury in their choice, and it seems to me that the plans as they are already meet our needs to a considerable extent.

"With their adoption we have taken a great step forward, and it is a happy coincidence that thereby we are once more indebted to Switzerland.

"In fact, without the generous aid given by the Swiss Confederation and the Canton of Geneva in the form of both money and land we could not have undertaken this project . . ."

Alterations to the design

The author of the winning design was asked to study, in conjunction with WHO, the possibility of making alterations in his design which would meet certain recommendations and objections on the part of the jury, and would enable the project to be carried out within the upper cost limit of Sw. fr. 40 000 000. These alterations have now been agreed upon: they include a reduction in the depth of the offices, a 6% reduction in the total length of the main building, a reduction in the height of the basements, ground floor and upper storey, and a reduction in the height of the council room.

The building site

On 29 April 1960, the Council of State of the Canton and Republic of Geneva formally submitted to the Grand Council an act expropriating the parcels of land comprising the proposed building site.

THE PSYCHO-SOCIAL ENVIRONMENT IN INDUSTRY

"Occupational health", stated a Joint ILO/WHO Committee on Occupational Health in 1950, "should aim at: the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological equipment and, to summarize: the adaptation of work to man and of each man to his job." [1]

The work of the industrial medical officer is thus not confined to running a first-aid department in an industrial undertaking, but embraces a variety of tasks. He must:

"... make himself technically minded to a degree that used to be thought quite foreign to the sphere of practical medicine.

"Lighting, heating, ventilation, humidity, dust control, prevention of emission of toxic gas and fume, optimum methods of working, weight lifting, shift systems, ways of avoiding boredom in repetitive work, adjustment of human relations, detection and removal of sources of friction and fear, investigation of processes known or suspected to lead to disease, development of physical and chemical methods to determine the absorption by the worker of dangerous compounds, maintenance of high standards of hygiene and sanitation, control of nutritional standards in canteens, development of the best technique for the treatment of injuries and poisoning—all come within the scope of environmental study, in the factory and in the laboratory. By such detailed study of industrial environment he appreciates the background against which to place new entrants, for rehabilitating the injured and partly disabled, for choosing alternative work for a man who has been sick, and for elucidating possible causes of acute and chronic illness among the workers."[2]

Things have thus changed greatly from the days when it would not have occurred to the management of an industrial concern to have a doctor on the premises except to give treatment to an injured or sick worker. Indeed, the emphasis in modern industrial medicine:

"... is upon people, the conditions in which they live and work, their hopes and fears, their abilities, their attitudes towards their job, their fellow workers, and their employers. Of course, the industrial doctor must have a practical clinical background which will enable him to assess physical factors in health and disease, and detect disease attributable to occupation. Far more difficult is the assessment of men and women as emotional beings, moved by trivial things, overturned by worries and anxieties, torn by conscience, stunned by the inevitable trials of family life, and easily captured by a sense of frustration and persecution. It is the interaction of this complex, an individual and his industrial environment, animate and inanimate, that the industrial doctor tries to analyse, and from the analysis to establish an equilibrium which permits a stable relationship." [3]

This complex environment, in which psychological and social aspects are inextricably combined, was the subject of a Joint ILO/WHO European Conference on the Industrial Medical Officer's Contribution to the Psycho-Social Environment in Industry, held in London in November and December 1959.

Not all of the delegates to the Conference were prepared to admit that the industrial doctor has any part to play in the psycho-social field. He has, it was argued, more urgent problems to deal with, especially in those industries where toxicological hazards are high and compel him to specialize in this field. Even if he does see psycho-social problems, he has no time to deal with them properly; nor, indeed, should he, for they are the prime responsibility of the management, one which he should not usurp. Moreover, he seldom has the skill or the training required to advise. In some countries, for example, the USSR, medical advice on

[1] Quoted in: *Wld Hlth Org. techn. Rep. Ser.*, 1953, **66**

[2] Hunter, D. (1959) *Health in industry*, Harmondsworth, Penguin Books, p. 20.

[3] Hunter, D. (1959) *Health in industry*, Harmondsworth, Penguin Books, p. 21

psycho-social problems is given to industry: not by the works doctor, however, but by consultant psychiatrists within the enterprise or in community polyclinics.

In general, however, the Conference felt that while the industrial doctor has other urgent problems to deal with, they cannot be dissociated from the psycho-social environment. He is often the person best placed to deal with psycho-social problems when they crop up, and if he has not time to deal with them it is his responsibility either to revise his duties so as to be able to deal with them or to ask for extra assistance; just as it is the responsibility of management and workers to see that he is given an opportunity to perform this difficult function. His task is, however, to advise, not to take action; the prime responsibility for action on psycho-social problems lies with the management of the works. Few industrial physicians, it must be admitted, are specifically trained to deal with these problems, but many have learned to do so by experience, and doctors, employers, and workers are responsible for exerting pressure to secure more specific training in the future. Different countries have different systems for dealing with psycho-social problems, differences that can be studied with benefit by all concerned. Even if the doctor is not concerned directly, he may be so indirectly, and regular meetings between the people responsible are therefore needed.

The industrial enterprise is influenced by external and internal factors, economic, social, and technical, all directly related and all affecting the mental and physical health of the individuals and groups within the enterprise. External factors in the post-war period include the rapid rise of nationalism in a number of countries, mass migrations, industrialization, the changing social structure, rapid technical change brought about by mechanization and the beginnings of automation and sometimes leading to increased leisure, and the altered ratio between clerical and service workers and workers on the factory floor. Alcoholism is a factor in some countries, related sometimes, but not always, to the rise in the standard of living, sometimes to bad housing conditions. Another is the concentration of industry, causing a flight from the country to the large cities.

The size of the industrial enterprise is in itself a factor in the psycho-social environment. Small units present fewer problems than large because the personal relationship between management and workers tends to be closer, the group is more homogeneous, and there is more understanding of the aims and possibilities of the business.

Within the enterprise the organization of the factory and the management's understanding of the human factor (which will govern the formal and informal relationship between it and the trade unions), the participation of the worker in the choice of the work he has to do, the pace set in the work, and the grasp of the need for technical change will all influence the psycho-social climate. The industrial medical officer's recognition of these factors will contribute to his ability to give advice that will be listened to and so influence the psycho-social environment for the better. He must, however, confine his advice to questions within his competence.

The industrial medical officer's role

The physical surroundings in which the individual works greatly influence him, and the industrial medical officer must therefore pay attention to such points as cleanliness, lighting, colour and ventilation, as well as to the raw materials and machines in use. A proper understanding of the influence of these material conditions on the worker requires an analysis of each person's work in relation to his aptitude and state of health. The doctor should carry out such an analysis, if possible; and should certainly be a member of any team that does job analysis, so as to advise on the physical and mental environment as it reflects the health of the worker. He should be able to help in predicting the consequences of technical changes. These inevitably lead to social and often to economic changes, and here he should make sure that the well-being of the individual worker is not sacrificed to the needs of production. These changes must also, in the natural course of things, arouse personal and group conflicts, which will be

brought to his notice if he is trusted by all the employees and which he is well placed to see at an early stage. Because of his position and profession, and trust in the confidential relationship between doctor and patient, he can act as a channel of communication between groups and different levels in the organization. This may help ease difficult situations, provided always that he reveals no source of information unless explicitly permitted to (or statutorily compelled to, as in reporting disease).

If the doctor is trusted, he is likely to find that he is asked for advice on subjects both inside and outside the factory. He cannot refuse to give this, but he must be careful not to upset relationships between the person asking him for advice and his family, general practitioner, or hospital consultant outside the works, or personal or group relations inside it. The number of persons asking him for advice and the type of advice asked for can often be regarded as a measure of the workers' confidence in the doctor, and can help reassure him that his task is being satisfactorily fulfilled. His advice will necessarily be limited by his training and experience.

Too much insistence on clinical examinations, whether before a person is employed, or periodically during his employment, or before he is placed in a specific job, may prevent the industrial medical officer from carrying out his other duties in such a way as to be of the greatest possible assistance to individuals, groups and the enterprise as a whole.

The Conference discussed the need for the industrial physician to be professionally independent. One view was that it is difficult to guarantee this if the doctor's salary is paid by the employer or by a trades union. Another was that a doctor whose professional ethical standards are high is not swayed or prevented from expressing his opinions, whichever side of industry pays him. The view was also expressed that the doctor paid by industry itself is more integrated into the life of that industry, and so more able to influence the management's outlook and protect the health of both managerial and other employee groups. The history, customs, and opinions of each country naturally count for a great deal in any question of how the doctor should be paid.

The Conference stressed the point that the industrial doctor should be capable of giving advice in terms understandable by, if not always acceptable to, any particular group in the enterprise. He must always express his opinion, because the doctor working in industry is regarded as the social conscience of the enterprise and silence or failure to comment on mistakes will be interpreted as acquiescence in the action taken. He must be aware of, and share in discussions about, all matters pertaining to the maintenance and improvement of the psycho-social environment. This he will do with the management, particularly as a colleague of the personnel manager; but he will also take due care to see that the workers and their representatives know about the work and responsibilities of a health service and are given an opportunity to share in them.

Dealing with psycho-social problems

Statutory legislation usually meets only the minimum needs in the psycho-social field, ensuring that the physical environment of the worker is not harmful to his physical, and by extension his mental, health. In many countries, too, bodies of workers and managers are set up by law to examine problems in the relationships between management and workers, problems that necessarily affect the psycho-social climate. An important part in maintaining and improving this climate is played by social security schemes, many of which are embodied in legislative provisions and some of which are supplemented by voluntary schemes set up by employers, trades unions, or both. Social security schemes should be encouraged by the industrial medical officer, and if there is none in the enterprise in which he works he should try to persuade employers and workers to introduce one. The Conference agreed that the doctor should have nothing to do with payments to persons or groups of persons under these schemes: he is an adviser only, and must take the utmost care neither to prejudice the

workers' rights to payment while ill or injured, nor to set himself up as the judge of a worker's state of health when the worker is being looked after by his family physician or other doctor.

The psychological assistance that an industrial doctor gives to individuals or to groups is another way in which he influences the psycho-social environment. This is not to say that he must necessarily have had special psychological or psychiatric training, though this would be of assistance to him. The studies he followed during his medical training should make him alive to human problems in their widest aspects, and enable him at least to give emotional first aid and perceive signs of psychological disturbance either in individuals or in groups. Much of this kind of assistance has been and is being given by experienced industrial physicians without their being expressly aware of it as a contribution to the improvement of the psycho-social environment. Collaboration with management and workers to discuss such questions as sickness absenteeism and morbidity rates, whether done in one enterprise, regionally, or even nationally, will profoundly influence the outlook of the managers and workers and also have a great educational effect on the doctors taking part. The Conference recognized that in eastern European countries the duty and responsibility of detecting and dealing with these problems are in several hands, not just in the hands of the industrial medical officer.

The doctor forms part of a team in all work affecting the psycho-social environment. The task of the personnel manager in this team deserves special emphasis: he should watch the psycho-social environment with particular care, and would be much assisted in giving individual and group counsel by training in psychology and psychological methods.

Training in occupational health

While in most countries there is an increasing demand for doctors to do occupational health work, in many there is a serious lack of qualified persons, particularly of persons trained to understand the demands made by the rapidly changing psycho-social environment. Some countries have no comprehensive and systematic training facilities at all for health work in industry, especially in the psycho-social field. The Conference agreed that all doctors in the course of their training should at least be given some awareness of the health problems of industry; they might then be assisted in the choice of their medical career and there might be an adequate supply of suitable candidates. The creation of institutes of occupational health would help in the training of doctors already in industry, since the subject is evolving so rapidly that it seems difficult—the Conference thought—to leave training in the hands of medical schools steeped in a tradition that apparently excludes consideration of the problems now facing industry. Such institutes might be set up nationally, with the aid and active collaboration of employers and trades unions. As well as giving training to doctors already in industry, each institute would provide background training to those entering the field, attempt to forecast the number of doctors required in years to come, act as an advisory centre, furnish a place of instruction and meeting, and organize refresher courses to keep doctors up to date with advances in occupational health. Clearly it would also have a department of industrial psychology, and have available skilled psychiatrists who would instruct industrial medical officers in the problems of industrial psychology and the psycho-social environment. And it would undertake research into occupational health, a field in which a great deal remains to be done. Possible subjects of research are the psycho-social environment in small industrial units, and the satisfaction to be got by the worker from belonging to, adapting himself to, and taking responsibility in, a group of workers.

The Conference ended by expressing the unanimous opinion that knowledge of occupational health, and of the problems of the psycho-social environment in industry, should be given international diffusion. The work of ILO and WHO in this field should be expanded in collaboration, where feasible, with other international and national bodies.

TUBERCULOSIS: RISK TO FAMILY CONTACTS

In developed countries with adequate hospital accommodation, drug treatment of tuberculosis has often freed beds. In less developed countries with inadequate hospital accommodation, the problem of beds for tuberculous patients remains acute. In India, for example, it is particularly serious, since there are only 23 000 beds for tuberculous patients, against a total number of persons affected that may be put at between 1.5 and 2.5 millions. Because of this a comparative study of domiciliary and sanatorium treatment of tuberculosis was undertaken by the Tuberculosis Chemotherapy Centre, Madras, which was set up in 1956 under the joint auspices of WHO, the Indian Council of Medical Research, the Madras Government, and the Medical Research Council of Great Britain. The purpose of the study was to determine whether drug treatment of tuberculosis in a country like India was as effective in the home as in the sanatorium; or, to put it differently, whether domiciliary treatment did away with the need to send a fair number of tuberculous patients to hospital.

A group of 193 patients were selected, most of them from the poorest classes of Madras City. They had to be more than 12 years old, to have had no previous drug treatment, and to have a positive sputum. Out of these 193 patients, 96 were treated at home, 97 in the sanatorium. The period of comparison lasted a year, and the results of the study, summarized in a previous Chronicle,[1] indicated that domiciliary treatment seemed to give as good results as sanatorium treatment. However, even if this problem is regarded as solved, there remains the very important point whether the risk of infection to the family is not greater when the patient is treated at home. A fresh study was carried out under WHO auspices on the same group of patients, with the aim of determining the over-all prevalence of cases of tuberculosis among family contacts when the diagnosis of tuberculosis was established in the family member included in the comparative study (the index case) and the number of fresh clinical and primary cases occurring among family contacts during the first year of his treatment. Contacts include all the other members of the family, but the inquiry was limited to "close" family contacts, i.e., those who had been living with the index case for at least three months before the diagnosis. In actual fact 96.7% of the 693 close family contacts had been living with the index case for at least a year.

When the index case started treatment contacts were given an examination that included a chest X-ray and a Mantoux test, and were re-examined in the same way every three months for a year. Any contact who had an abnormal chest X-ray was given a full clinical and bacteriological examination, X-rayed again, and if necessary submitted to more Mantoux tests. As well as this, contacts were visited at home by doctors and health visitors, whether the index case was being treated at home or in the sanatorium. When chest X-ray examination showed abnormalities during the year, the sputum or laryngeal swabs were cultured. If the Mantoux test became positive, a chest X-ray was taken six weeks later. Generally, when a fresh case of tuberculosis was discovered, drug treatment was not started until bacteriological confirmation of the disease had been obtained, but an exception was made for young children and when the lesions shown in the X-ray were progressing rapidly.

Examinations were carried out in 693 contacts of the 193 patients treated at home or in the sanatorium; of these 347 were men and 346 women. The survey of the prevalence of tuberculosis when the index case started treatment was based on 672 contacts. Active tuberculosis was found in 46; in another 2 activity was doubtful; and in 11 tuberculosis was inactive.

Of the 46 cases of active tuberculosis, 27 were classified as adult-type, 19 as primary

[1] *WHO Chronicle*, 1959, 13, 397

or post-primary in type. The Mantoux test was carried out on 647 contacts, and 90% of those between the ages of 15 and 24 had indurations of more than 5 mm. It may be assumed that all contacts in these age groups had had their primary infections.

Of still more interest was the inquiry into fresh cases of tuberculosis appearing in close family contacts of patients treated either at home or in the sanatorium during the first year of treatment. There were 257 contacts of the 75 patients treated at home, and 275 contacts of the 73 patients in the sanatorium. The families in which an infectious case other than the index case was discovered had been excluded from the inquiry. The two groups were alike in the proportion of men to women, in the kind of home they lived in, and in the results of the initial examination; and they were followed up in the same way during the year of the inquiry. During this year, 26 cases of active tuberculosis were discovered in the two groups of contacts; 9 (3.5%) in the group of contacts of patients treated at home, and 17 (6.2%) in the group of contacts of patients treated in the sanatorium.

Of these 26 cases, 15 were under 5 years old and 21 under 10 years old. The most serious cases all belonged to the group whose index cases were treated in the sanatorium.

In 17 cases discovered in the first 3 months, infection by the index case had probably occurred before treatment started, for among them were 5 Mantoux negative cases belonging to the group of contacts of patients treated in the sanatorium and therefore separated straight away from the index case. In the last 6 months of the study, only 4 fresh cases of active tuberculosis were discovered, in contacts of patients treated at home. It is difficult, however, to say whether infection came from the index cases earlier in the year of treatment or from a source outside the home.

Seven deaths occurred among contacts of patients treated at home, but all were in children less than 3 years old and were due to other illnesses than tuberculosis. There were 3 deaths, 2 due to tuberculosis, among contacts of patients treated in the sanatorium.

Serial Mantoux tests during the year showed that primary infections were no more common in the group of contacts of patients treated at home than in the other.

Even if encouraging conclusions can be drawn from this study, domiciliary treatment of the open tuberculous patients should be considered as an emergency measure only, to be taken when institutional treatment for 3-6 months is impossible because of a shortage of beds. Every effort should be made not to send patients home until their sputum has become negative for tubercle bacilli, at least on microscopical examination.

A final conclusion is that the frequency and seriousness of tuberculous lesions in young contacts are a sufficient justification for systematic prophylactic treatment of children whenever a sputum-positive patient is newly diagnosed in their household. This treatment should be started immediately and carried out for a minimum period of 6 months.

Reports of Expert Groups

The hygiene of milk and its products *

Problems of milk contamination, whether by micro-organisms, radiation, insecticides or antibiotics, are under constant study by responsible national authorities and the international organizations concerned. A recently published report of the Joint FAO/WHO Expert Committee on Milk Hygiene [1] provides up-to-date information on various aspects of the sanitary production of fluid milk, and also gives special attention to the hygiene of various milk products (butter, cheese, ice-cream, etc.), and to the problems involved in producing safe milk and allied products in warm countries.

Sources of contamination

Diseases transmitted through milk were dealt with in detail in the Joint Committee's first report.[2] Of these, staphylococcal enterotoxin poisoning is being recognized with increasing frequency. The improper and indiscriminate use of antibiotics by intramammary infusion for the treatment of mastitis has resulted in the production of antibiotic-resistant staphylococci. Fortunately, adequate heat treatment of milk effectively kills staphylococci, but if they have been allowed to multiply in sufficient numbers and over a long enough period before processing, the heat-stable enterotoxin formed can cause serious outbreaks of food poisoning even from adequately pasteurized products such as cheese and dried milk. This can be prevented by early cooling of all raw milk to 10°C or lower, and by careful handling and proper refrigeration after processing. Streptococcal infections are of importance chiefly in countries where the milk industry is in an early stage of development, and the same precautions should be taken. Tick-borne encephalitis is now believed to be far more widespread than was previously thought. It appears to be associated more with goat's and sheep's milk than with cow's milk; butter prepared from infected milk can maintain the virus for two months at 4°C. Research is required on the life-span of the virus, its inactivation (which appears to require different time-temperatures from those of pasteurization procedures), and the possibilities of vaccinal protection of animals.

The feeling of the Committee was that the use of antibiotics for treatment of bovine mastitis should be more strictly regulated than it has been in the past, and that milk from the animals concerned should be under more rigid control. Recent investigations on various types of " marker " for detecting the presence of antibiotics have suggested that dye preparations and chlorophyll are the most promising. Care must be taken, however, that such markers are non-toxic, do not affect the activity of the antibiotic, and are readily detectable in minute amounts, uniformly dispersible in milk. The role of insecticides and herbicides in dairying demands urgent study, since organo-phosphorus compounds, about the possible effects of which little is known, are now being employed as systemic insecticides. The appearance of radio-nuclides in milk after environmental contamination has aroused even greater public concern, and is receiving attention from national and international authorities such as the International Dairy

* Joint FAO/WHO Expert Committee on Milk Hygiene (1960) *Second report* (*Wld Hlth Org. techn. Rep. Ser.*, No. 197), Geneva, 55 pages. Price: 3/6, $0.60, Sw. fr. 2.—. Also published in French and Spanish.

[1] Members of the Committee: Professor S. Anselmi, Italy; Dr F. W. Barber, USA (Chairman); Dr T. E. Galesloot, Netherlands; Dr C. K. Johns, Canada (Rapporteur); Professor P. Kästli, Switzerland (Vice-Chairman); Dr Y. Lebedev, USSR; Dr R. J. MacWalter, United Kingdom; Professor G. Thieulin, France. Representative of UNICEF: Mr R. L. Cooper. Secretariat: Dr M. Abdussalam, WHO; Mr R. N. Clark, WHO (Joint Secretary); Dr M. M. Kaplan, WHO (Joint Secretary); Professor H. D. Kay, United Kingdom (Consultant); Dr Hans Pedersen, FAO (Joint Secretary).

[2] *Wld Hlth Org. techn. Rep. Ser.*, 1957, **124**

Federation, WHO, FAO, and the United Nations Scientific Committee on the Effects of Atomic Radiation. Of particular interest, both economically and in reducing the hazards to human health, are the research efforts under way to discover means of decontaminating milk.

Safe milk products

The Committee took up the question of the hygienic control of milk products such as butter, cheese, ice-cream, and dried and fermented milks. In general, the infections transmitted through such products are the same as those spread through fluid milk, and their epidemiology and control were described in the Joint Committee's first report. Certain infections may, however, be introduced during processing and handling, while long storage at low temperature of such products as ice-cream and butter is ideal for the preservation of pathogenic micro-organisms. *Mycobacterium tuberculosis*, *Brucella* and the staphylococcus have been detected in butter after long periods, and *Salmonella* is likely to be found in the additional constituents of ice-cream. Several varieties of cheese are prepared from unpasteurized milk, and hence are subject to the same risks as those noted above; the so-called cheese poisoning observed in warm-weather countries is thought to be caused principally by staphylococcal enterotoxin formed in unfermented cheese. The lactic acid in fermented milk may have some inhibitory effect on *S. typhi* and other *Salmonella* and *Shigella*, but organisms such as *Mycobacterium* are not destroyed. Little is known, however, about the survival of pathogens in such milk, or in products such as khoa (concentrated milk), ghee and other butter-fats. Research on these aspects should utilize the advanced bacteriological techniques now available.

The most important step in preventing the spread of infections through milk products is their control in the original milk. For dried milk (a food of great value to developing countries) the milk should be heat-treated at temperatures at least as high as for pasteurization, and subsequently protected from recontamination as well as contact with materials liable to bring about catalytically a deterioration of the lipid compounds. Reconstitution presents further risks: the water used must be bacteriologically safe and free as far as possible from mineral salts; equipment and utensils should be scrupulously clean; the procedures should be carried out accurately by healthy and experienced workers; and the product should be consumed with as little delay as possible.

Pasteurization of milk to be used for cheese is also very desirable; cheeses made from raw milk should invariably use milk from herds free from tuberculosis and *Brucella* infections. The growth of lactic acid bacteria essential for the inhibition of micro-organisms and for the production of cheese of good quality should not be suppressed by the presence of antibiotics, bacteriophages or nisin-producing bacteria. The supply to cheesemakers of efficient cultures and of uncontaminated high-quality rennet is therefore important.

In butter-making every care should be taken to prevent contamination of cream during cooling, churning and eventual ripening by using easily-sanitized churns and other equipment, clean water of low bacterial content for washing the butter granules, and automatic packing-machines; butter made in a creamery should be regularly examined for its bacteriological content.

The manufacture of butter-oil and ghee entails heating to temperatures amply sufficient to destroy all pathogenic organisms—hence problems of hygiene arise chiefly through subsequent contamination or the addition of adulterants such as animal or vegetable fats. Stringent control of these processes is therefore recommended, and freedom from adulteration should be ensured.

The preparation of ice-cream presents yet more opportunities for the transmission of infection, and in more advanced countries its production and handling are controlled by standards and regulations. The many varieties of both dairy and non-dairy foods used in its manufacture involve various risks, and they must therefore be of the highest quality

with respect to their physical, chemical and bacteriological condition. Pasteurization of the mixed ingredients must be more severe than for milk, and every sanitary precaution must be taken both before and after heat treatment and freezing. Bacteriological analyses should be made frequently of all ingredients, and daily of the mix and frozen products. The health and proper instruction and supervision of personnel are of especial importance, particularly in connexion with the newer soft-serve products, which are frozen and dispensed without further hardening and demand a very high level of sanitary practice for hygienic safety.

Cream should be prepared only from milk of the highest quality, preferably by centrifugal separator and at a temperature above 15°C. Its higher fat content requires a more drastic heat treatment than milk in pasteurization; sanitary equipment and distribution are again of the utmost importance.

Fermented milks are a speciality of certain central and southern European and Asian countries; annexed to the report is a useful description of many lesser-known milk products consumed in these areas. The souring process, while reducing the danger of disease, does not always render a product safe. Similar precautions to those recommended for fluid milk are therefore desirable; this applies also to flavoured milks and to evaporated or condensed milk.

Water used in dairying should invariably reach the standard of drinking-water, and should also be of a quality appropriate to its purpose—i.e., for cleansing, it should be non-corrosive and free of materials that might react unfavourably with chemical or detergent agents or leave objectionable residues on equipment; for cooling or heating, it should likewise be neither strongly corrosive nor strongly encrusting; while for such processes as reconstitution of dried milk or butter-washing, it should, of course, be very carefully examined and, if necessary, treated.

Milk hygiene in warm countries

Many of the warm-weather countries are also those where poverty and protein malnutrition are common while at the same time the population is rapidly expanding. It is generally considered that permanent improvement of child nutrition in those countries is dependent on increased and improved local production of milk. A reasonably satisfactory milk can, in fact, be produced if the simple principles followed in other countries during their early stages of development are adapted to the local conditions prevailing in these less-developed areas.

A limiting factor for dairy development is lack of properly trained personnel; livestock improvement and increased efficiency of milk production and distribution are also needed. Preservation of milk in warm climates presents a great problem; the use of hydrogen peroxide for this purpose is countenanced only as a necessary evil, since it is felt that it may eventually lead to neglect of hygiene.

Buffalo milk is becoming increasingly popular in countries where the animal thrives, and further research on its content and the problems of hygiene it presents would be well repaid. The consumption of liquid sheep and goat milk and of cheese and butter made from unheated raw milk is considered to be one of the major causes of severe brucellosis in man in Mediterranean, South American and Asian countries, and should be severely condemned; the control and eradication of zoonoses should be fostered. Simple education on such milking practices as the use of small mobile wooden platforms, and milking from the side rather than the back, would do much to decrease the risk of contamination. FAO plans to convene a meeting in the course of 1960 that will be concerned principally with sheep and goat milk problems and improvement of relevant breeding and husbandry practices in the Mediterranean area.

Health Legislation

Classification of pharmaceutical preparations

Some pharmaceutical preparations are toxic, and if used without medical surveillance are dangerous; some are inflammable, corrosive, or even explosive. Limits must therefore be placed on their circulation. Each country needs to make regulations for the protection of the population against accidents that might arise from unrestricted trade in these products.

For this purpose the pharmaceutical preparations already on the market, as well as those being introduced at an ever increasing rate, must be classified. Even a few years ago such a classification was relatively easy to make. During the last twenty years, however, hundreds of new preparations—sulfonamides, antibiotics, addiction-producing drugs and hormone products—have been appearing, causing difficulties in international trade, since in certain countries some of them—both patent medicines and official products—may be sold freely, whereas in others they are sold under stringent control.

In 1958 the International Pharmaceutical Federation expressed the wish that WHO would be able, "as suggested by a study group of WHO set up to examine the use of specifications for pharmaceutical preparations, *to undertake a study with the object of obtaining uniformity in the principles of classification of toxic substances used in therapeutics in different countries.*" In particular, it would be advantageous to study the possibility of establishing a list of toxic substances used in therapeutics in respect of which proposals on labelling and supply to the public might be made to the governments of the different countries.

An analysis of the legislation of fourteen countries on the classification of pharmaceutical preparations has just been published in the *International Digest of Health Legislation*.[1]

The regulations of the countries studied show no uniformity. This is a reflection of their basically different approaches to the classification of pharmaceutical preparations. There is, however, a common element in most texts: some preparations can be supplied only on medical prescription, many only by a pharmacist. Other factors that may influence classification systems and give rise to marked divergences in the regulations are the rules about renewal of prescriptions, keeping of pharmaceutical preparations by pharmacists, the maximum amounts that pharmacists can supply without prescription, and, especially, labelling requirements for these preparations. A system of classification may also take into account that trade in pharmaceutical preparations is not always restricted to pharmacists. In some countries they may be sold by other classes of traders; in France, however, the pharmacist has a practical monopoly of this trade.

Classification systems also differ because groups of pharmaceutical preparations are omitted from general regulations. In some countries general regulations cover preparations for non-medical uses, vaccines and sera, addiction-producing drugs, or antibiotics; in others these substances are the subject of special regulations. In the United Kingdom, for example, vaccines and sera are covered by a special regulation, and so remain outside the general legal provisions on pharmaceutical preparations and the classification adopted therein.

The survey published in the Digest covers legislation in the following countries: Belgium, Canada, Chile, Dominican Republic, Ecuador, France, Federal Republic of Germany, India, Israel, Norway, Portugal, Switzerland, United Kingdom, and USA.

[1] See *Int. Dig. Hlth Leg.*, 1960, **11**, 5. This study has also been published as an offprint (price: 3/6, $0.60, Sw. fr. 2.—).

Notes and News

Isoniazid in the prophylaxis of tuberculosis

The antituberculous properties of isoniazid, its low toxicity, ease of administration, and cheapness have since its introduction aroused interest in its possibilities in the prophylaxis of tuberculosis. Experiments in animals have shown that it can prevent them from contracting tuberculosis after challenge doses of bacilli have been administered to them, and the results achieved have stimulated inquiry into its effectiveness in man. In a recent number of the *Boletín de la Oficina Sanitaria Panamericana*,[1] J. Murray, of the US Public Health Service, describes a study of its effects on human beings, carried out in co-operation with several paediatric clinics in the USA, Mexico, Puerto Rico and Canada.

Isoniazid was administered to children with asymptomatic primary tuberculosis, in the hope of preventing tuberculous meningitis and other serious complications. In all 2750 children were studied, divided randomly into two groups alike in age, sex, reaction to tuberculin, and radiological findings. Each child in one group received daily doses of 4 to 6 mg of isoniazid per kg body weight for 12 months. In the other group, the children received inert tablets. All the tablets were put up in bottles that could be identified only by conventional numbers, so that neither the staff of the clinic nor the patients themselves knew who was receiving isoniazid, who inert tablets.

Once a month in the first year and once every three months in the second the children were carefully examined for early signs of complications. Of the 1394 children who received isoniazid only 2 had clearly marked complications, and in 4 more the position was doubtful. Of the 1356 who received inert tablets 27 had clear complications, and in 2 the position was doubtful. The difference in these figures is obviously of statistical significance.

Although, because of its small cost and absence of side effects, isoniazid could be given to all tuberculin-positive children, the incidence of complications is so low that it would be preferable to treat only those who run the greatest risk. The risk increases with the degree of infection as shown by X-rays, and decreases with age.

Another interesting question is what happens to the children after a year's medication with isoniazid. The investigation included this period, and it was found that complications occurred from the 12th to 24th months in 3 of the children who had received the drug, as against 6 in the group that had received inert tablets.

These findings encouraged those taking part in the investigation to go further into the prophylactic possibilities of isoniazid and try to show whether it could prevent pulmonary tuberculosis. To begin with, the study was confined to family contacts: they accepted treatment more readily; the scheme was cheaper because a system of examining contacts was already functioning; and contacts were considered to run a greater than normal risk of being infected. Both tuberculin-negative and tuberculin-positive contacts were included, and were divided into two equal groups, one of which was treated with izoniazid (in doses of between 3 and 6 mg per kg body weight), the other with inert tablets. As in the study of the children, neither patients nor staff knew which contact belonged to which group.

Not enough time has elapsed for this inquiry to show results, but even if isoniazid were to be shown to be completely effective in tuberculin-negative individuals its value in the campaign against tuberculosis would be very limited, according to Murray, because these individuals run scarcely any risk of being infected, the infection rate, at least in the USA, being a rapidly decreasing one. It could however be used in given cases in which there was considerable exposure to infection. Studies in the USA and in Denmark (by the Danish Tuberculosis Index) have shown the high proportion of cases of tuberculosis that appear in tuberculin-positive individuals, and the probability is that this proportion will increase in the future. The results of prophylactic treatment in the group of tuber-

[1] *Bol. Ofic. sanit. Panamer.*, 1960, **48**, 47

culin-positive individuals will therefore be of great interest.

But even if prophylactic treatment were confined to tuberculin-positive individuals a programme of prophylaxis would be a tremendous undertaking; in the USA alone, for example, there are 50 million tuberculin-positive individuals who would have to be treated with isoniazid for the rest of their lives. This being so, the really important question is whether, after a year's treatment, fewer cases of tuberculosis will appear among the tuberculin-positive individuals who have received isoniazid. If fewer do, the drug will be of the greatest value, not only for its effect on those who have been infected, but also because indirectly it will reduce the risk of infection among those who have not.

Limitations of the film in health education *

Control of communicable diseases is a serious health problem in Peru, and especially in the Andean region, because of the people's unhygienic habits. In connexion with a programme for the control of tuberculosis and the prevention of intestinal parasitoses in Vicos—a small rural Andean community in the province of Carhuás—it was decided to evaluate the population's response to audiovisual education by showing some of them a film.

The people of Vicos retain many of the characteristics of the indigenous inhabitants under the Inca Empire in ethnic composition, language, traditions, customs, and social organization. They speak the Quechuan dialect and live by agriculture and cattle-raising. Most of them are sparsely scattered over an area of more than 7000 hectares. They are full of superstitions, which determine their attitude to disease, medicine, and doctors. They live, crowded together with their animals, in dwellings of mud, gravel, and straw. For bedding they use the skins of goats and sheep, and to protect themselves against the cold they wear cloaks (*ponchos*) and shawls made of coarse woollen-mixture material. The community lacks safe drinking-water and has no drainage system.

About 60 inhabitants of Vicos were shown a film on the louse and its role as a vector of exanthematic typhus (which occurs frequently in the Peruvian *sierra*), and on ways of preventing the disease. The film was presented in a simple manner in the people's own tongue, and at the end questions were put to members of the audience.

Subsequently, a survey was made to discover how far the people had understood the film, their attitude to it, and the effect it had had on their habits. In all, 27 persons were interviewed (9 men, 11 women, and 7 children) by means of a questionnaire.

In the commentary on the film, the word "*tabardillo*" was used to mean "exanthematic typhus", but the inhabitants thought it referred to another disease caused, they said, by the heat. Consequently, no one thought of the louse as the causative agent or vector, or realized that "*tabardillo*" was communicable, or related it in any way to what they had seen in the film. They seemed to have felt some revulsion at the sight of the parasite and the infested persons, but they did not connect them with the disease. They remembered especially the domestic scenes, and in particular those which had shocked them, i.e., those showing the lice and infested persons. Not one of them had any conception of the film as a whole: they saw it as a succession of independent scenes. None of those questioned recognized the disease in the film as one that existed in the community. They were asked if they knew who had presented the film or appeared in it. Some supposed that it was the doctors; most of them did not know, and only two mentioned the health education consultant.

The authors draw the practical conclusion that too much reliance should not be placed on films in health education of the public. By themselves, they will not necessarily change people's habits and attitudes, and they are of value mainly as an auxiliary medium to supplement active teaching.

Research on Chagas disease

A group of experts from Argentina, Brazil, Chile, Mexico, Peru, Venezuela and the United States has recommended to the Pan American Sanitary Bureau (PASB), which acts as the WHO

* Summary of an article by Díaz Lira, Ponce de León, Cato Lube & Abner Montalvo (*Bol. Ofic. sanit. panamer.*, 1959, 47, 520

Regional Office for the Americas, that it sponsor studies on Chagas disease. Although about 35 million people in the Americas are exposed to this disease, some of the basic facts about it are still unknown.

The group recommended in particular research on the epidemiology of the disease, the ecology and susceptibility to insecticides of the reduviid bugs—known in the United States as "kissing bugs"—which spread it, and on improved methods of prevention and treatment.

Chagas disease, which appears to exist only in the Americas, is found as far north as the United States and as far south as Argentina, principally in areas with low standards of housing and sanitation. PASB is now studying the experts' report to see how many of their recommendations can be implemented in the Bureau's programme.

Typhus in 1959

Louse-borne typhus cases were counted in millions after the First World War, and in thousands after the second. In 1959, according to a recent number of the WHO *Weekly Epidemiological Record* (No. 13, 1960), the number of cases officially notified under the International Sanitary Regulations was only 5800. This represents a decrease of more than a thousand cases from the 1958 figure of 6960.

The biggest drop was in Ethiopia, which also had the largest number of cases in both years: 4749 in 1958, and 3694 in 1959. In the whole of Africa there were 5700 cases in 1958, and 4900 in 1959.

In Africa, apart from Ethiopia, the cases were distributed as follows: 811 in the Province of Egypt (United Arab Republic) as compared with 789 in 1958; 79 in Cape Province, Union of South Africa; and sporadic cases in Algeria (26), Libya (17), and Tunisia (15).

In the Americas, the highest number of cases was recorded in Ecuador (283), followed by Mexico (258), and Peru (96); the presence of the disease was also notified in Colombia (12 cases), Chile (6), and Argentina (4).

In Asia (outside continental China), the disease was reported in South Korea (67 cases), Afghanistan (40), and Iran (15); in Turkey 23 cases were notified.

In Europe the louse-borne type of typhus was present in Yugoslavia (85 cases) and in Bulgaria (4).

Water development in Peru

In many parts of the world, increasing attention is being paid to the development of urban water supplies. Although any sizeable city should be able to plan, finance, manage and operate its own waterworks, very often some stimulus and advice on general planning are needed from an agency operating at the state or national level.

Peru has accordingly organized a National Board for Water Development, which will meet twice monthly to discuss and plan the water development of the country. In view of the conflict that often exists between competing interests in questions of water supply, the Board comprises representatives of the various agencies concerned with this problem and aims at co-ordinating their efforts.

WHO plans to provide travel grants that will enable the members of the Board to visit certain other countries and study other water administrations, so that they may be fully equipped to carry out their important and urgent task.

Dental services for children

The development and improvement of dental health services for children in the light of the different methods and resources of the countries of the European Region were discussed by a seminar held in Göteborg, Sweden, from 20 to 27 April 1960, by the WHO Regional Office for Europe. Forty-two dentists from 26 European countries took part.

Among the topics discussed were: caries prevention; the number of hours a dentist can work per day in a children's dental health service; the number of children for whom he would be able to provide adequate care; the priorities in a dental health service in view of the shortage of dental personnel; the question of using auxiliary personnel

nel; fluoridation of drinking-water and other mass preventive measures against caries; improvement of dental health education; the importance of research, uniform terminology, and proper recording of results in the field of dental health; undergraduate and post-graduate training in child dentistry and orthodontics.

It was agreed that the most important dental problem among European children is the prevalence of dental caries, which ranges from 50% to 90%, being highest in the countries of western Europe. Most of the children already have caries by the age of three, sweet-eating being one of the chief causes. Much still remains to be done towards improving the condition of children's teeth in Europe, and participants in the seminar agreed that closer collaboration between medical and dental services for children would be helpful. The participants undertook to inform the health authorities of their respective countries of the findings of the seminar.

Private donation to Malaria Eradication Special Account

Mrs I. Lønborg-Madsen, a Danish lady living in Portugal, recently made a donation of 50 000 Danish kroner (about $7250) to the WHO Malaria Eradication Special Account. In donating this sum, she asked for the money to be used for WHO projects in Africa.

Mrs Lønborg-Madsen and her late husband lived for several years in Africa, and themselves suffered from malaria. She has thus had the opportunity to appreciate the amount of human suffering and loss of life caused by the disease, as well as the economic loss it can bring to whole populations and the obstacle it presents to their natural development.

WHO is deeply indebted to Mrs Lønborg-Madsen for this generous donation, which is one of the first examples of private support for the world-wide malaria eradication programme.

People and Places

New Area Representative in India

Dr L. G. Eddey has been appointed WHO Area Representative in India. In this capacity he will advise the WHO Regional Director for South-East Asia on the development of schemes for WHO assistance in India, co-operate with the national Ministry of Health in working out a co-ordinated WHO-assisted programme from year to year, and co-ordinate the activities of the 70 WHO workers in projects throughout the country.

Dr Eddey has had more than thirty years' experience of public health work, having served as Director of Medical Services in British Guiana, and as Director of Medical Services and later Chief Medical Officer to the Ministry of Health, Gold Coast (now Ghana). He has led the United Kingdom delegations at various international health conferences. After joining WHO in 1955, Dr Eddey served for a time as a public health specialist in Nepal. For the past three years he has been a public health administrator on the staff of the WHO Regional Office for South-East Asia in New Delhi.

Training of paramedical personnel

The subject of the technical discussions at the thirteenth session of the WHO Regional Committee for South-East Asia, which will be held in Indonesia later this year, will be " Evaluation of training programmes for paramedical personnel ". The training and use of auxiliary personnel has become an urgent problem in all countries of the Region, where the demand for health services is rising, particularly in rural areas, and the supply of professional health workers is inadequate. To help in the preparations for these discussions, Dr N. R. E. Fendall is spending five months in the Region, studying available information on the subject and visiting the various countries concerned.

Dr Fendall, who comes from New Zealand, is Assistant Director of Medical Services (Health) in Kenya, and a member of the Overseas Civil Service of the United Kingdom. During his service in various parts of the Commonwealth, his main concern has been to bring the benefits of modern public health to the rural areas of developing countries; this has entailed a close study

of the training and use of health auxiliaries. In 1956-57, in furtherance of his studies, he visited the USA, Puerto Rico, Central America and South Africa on a WHO fellowship.

Goitre in Pakistan and Lebanon

Dr Josip Matovinović has been appointed WHO consultant to the Governments of Pakistan and Lebanon for the planning—and possibly the launching—of a survey on the prevalence of goitre in these countries.

A graduate of the Medical Faculty of the University of Zagreb, Yugoslavia, Dr Matovinović is at present on the staff of the Radioisotope Unit, School of Medicine, University of Michigan, USA. He has made extensive studies of goitre in Yugoslavia.

Virological research in the United Arab Republic

Professor A. Smorodintsev, of the USSR, was appointed by the WHO Regional Office for the Eastern Mediterranean as consultant to the Agouza Laboratory, Cairo, Province of Egypt, United Arab Republic, at the beginning of April, with the task of developing research on poliomyelitis and other virus diseases, including influenza, smallpox and insect-borne infections of special concern to the United Arab Republic.

A Member of the USSR Academy of Medical Sciences, a holder of the Stalin Scientific Prize (First Class), and an Honorary Member of the New York Academy of Sciences and of the American Society of Bacteriology, Professor Smorodintsev has headed the Virological Department of the Institute of Experimental Medicine, Academy of Medical Sciences, USSR, for more than twenty years. He has played a leading part in the development and testing of a live poliomyelitis vaccine in the USSR, and, during his 6-week assignment in Cairo, he helped national staff in their research on the poliomyelitis virus with a view to planning mass campaigns against the disease.

Yaws control in Thailand

A yaws control programme, helped by WHO and UNICEF, has been in operation in Thailand since 1950. The national field teams under the direction of Dr Somboon Vachrotai have recently been redeployed so as to concentrate on those provinces where the prevalence of active yaws is still relatively high. The best way of integrating yaws control into the local health services is also being studied.

Dr Jean Grassioulet, of France, has been appointed second WHO medical officer to help with this stage of the programme. (The senior WHO medical officer is Dr J. de Vries, Netherlands, who has been working in Thailand since 1958.) Before joining WHO, Dr Grassioulet was Director of Public Health Services, French Guiana; he has also worked in the Public Health Service of Morocco on epidemiology, the control of communicable diseases, and rural health in general.

The programme is also being helped by the newly formed WHO Treponematoses Advisory Team (see below).

Treponematoses Advisory Team

Many of the areas where there was formerly a high prevalence of yaws have now been covered by mass treatment surveys conducted with help from WHO and UNICEF. It is still, however, important to know: where and to what extent the infection still persists in areas in which mass treatment is believed " for practical purposes " to have eliminated the disease; what is the true extent of the infection in areas of uncertain prevalence, in which no campaign has so far been carried out; and what the future programmes for such areas should be.

WHO is accordingly forming Treponematoses Advisory Teams, which will help health administrations to undertake selective surveys and conduct enquiries into the points just mentioned. The first of these teams is composed of: a medical officer, Dr G. M. Antal, of the German Federal Republic, who has previously worked in the Nigerian yaws programme; a nurse administrator, Mr. J. P. Maxwell, of the United Kingdom, who has had many years' experience in yaws campaigns in West Africa and the Pacific islands; Mr. P. C. Kaufmann, of Switzerland, WHO headquarters statistician; and a laboratory technician, Mr J. F. D'Costa, of India.

The Government of Thailand has requested the services of the team for a period of one year, starting in May 1960, after which it will go on to evaluate some of the yaws control programmes in the Western Pacific Region.

Review of WHO Publications

MALARIA

Bulletin of the World Health Organization, 1960, Volume 22, Number 6 (pages 601-766)

Five years have passed since the Eighth World Health Assembly accepted and sponsored the idea of global malaria eradication, and the progress achieved during this period has been very satisfactory. Not research, but stimulating, organizing and assisting world-wide activities devoted to the eradication of this disease is now the primary aim of the World Health Organization in the field of malaria. Nevertheless, the attention paid by the Organization to problems of malaria research has been steadily increasing during the past years. In spite of the satisfactory results of malaria eradication programmes there are still obstacles to overcome before the final goal is reached. Some of these are of an administrative, social or economic nature; others are technical. WHO seeks to deal with impediments of both types, and the solution of technical difficulties depends on the amount of research devoted to malaria.

WHO attempts to fill in some gaps in knowledge of the fundamental aspects of malariology and also to facilitate the technical application of the existing knowledge. This endeavour is carried out through the stimulation and material assistance of research projects undertaken by national institutes. The international collaborative work is maintained through the medium of expert committees, scientific groups or special training courses.

The national or international workers engaged on local malaria eradication programmes contribute an increasing flow of scientific data collected in the field. All these data are channelled, classified and recorded by WHO and constitute an important source of scientific information. Knowledge of new facts or achievements is disseminated as rapidly as possible in scientific publications.

This number of the Bulletin represents a cross-section of research problems of importance not only to the progress of malaria eradication but also to the furtherance of general knowledge in the fields of biology and public health.

The review by Sir Gordon Covell deals with the relationship between malaria parasitaemia and symptoms of the disease, a subject of obvious importance in the consolidation phase of malaria eradication and on which malariologists working in different epidemiological conditions are far from unanimous.

Alving and his colleagues give an account of the high sensitivity of the blood of some persons to 8-aminoquinolines—a defect which is inherited and due to a partially dominant sex-linked gene. These authors indicate the way to practical solution of problems of radical treatment of malaria in countries where side-effects of 8-aminoquinolines might be relatively frequent.[1]

Brewer and his co-workers describe a field method which permits easy identification of persons with high sensitivity to 8-aminoquinolines.[1] Lysenko provides a valuable review of the work on 8-aminoquinolines carried out with much success in the USSR, and Fuhrmann describes a field test for the estimation of chloroquine in urine in programmes where supervision of mass administration of the drug is particularly important.

Yekutiel defines the new problems of epidemiology in terminal phases of malaria eradication and introduces some tentative criteria for operational aspects of malaria eradication programmes. He also describes new methods for the epidemiological assessment of the progress of malaria eradication.

A good example of international collaborative work is to be found in the paper by the WHO Division of Malaria Eradication and the Lister Institute of Preventive Medicine. Through the joint efforts of these two bodies more than 56 000 precipitin tests have been carried out on material from all parts of the world during the period 1955-59 with a view to investigating feeding preferences of malaria vectors. The results are summarized and discussed.

[1] A summary of this article appeared in *WHO Chronicle*, 1960, **14**, 239.

Muirhead-Thomson critically examines the problem of changes in behaviour patterns of *Anopheles* vectors exposed to contact with residual insecticides and discusses the importance of " behaviouristic avoidance ".

Sacca & Guy report an observation on the changed behaviour pattern in *A. labranchiae* exposed to DDT deposits in a malaria programme in Morocco. Perry describes a number of biochemical studies carried out in the field in order to elucidate the mechanism of DDT resistance in certain *Anopheles* mosquitos.

Finally, the laboratory experiments and field trials carried out by Hocking and his colleagues show that the residual action of BHC could be significantly extended by using a new formulation which decreases the sorption of insecticides by mud and other materials used in the construction of African dwellings.

COMMUNICABLE DISEASES

Bulletin of the World Health Organization, 1960, Volume 23, Number 1 (pages 1-134)

During the past four years, a series of studies on the laboratory diagnosis of various diseases—intended to help public health laboratories and research workers to select and to carry out diagnostic tests—has appeared in the Bulletin. This issue presents two such studies: one on *Pneumococcus* infections, by Erna Lund of the Statens Seruminstitut, Copenhagen, Denmark, the other on whooping-cough, by H. Lautrop (also of the Statens Seruminstitut). These studies, like their predecessors on plague, cholera, streptococcal and staphylococcal infections, *Shigella* and *Salmonella*, describe and discuss the collection of specimens, culture media and reagents, and chemical and serological tests. In each, there is a list of references to the principal studies on the subject.

One of the purposes of the field trials of typhoid vaccines carried out in Yugoslavia in 1954-55 was to compare the efficacy of vaccines prepared in different ways and to find a laboratory test in animals that would give results applicable in man. Three laboratories—in England, Yugoslavia, and the USA—were entrusted with the study of the various types of vaccine, and A. F. B. Standfast describes the results obtained at the Lister Institute of Preventive Medicine, Elstree, England, and compares them with those obtained in the other two laboratories.[1]

In the autumn of 1949 poliomyelitis, which had until then occurred only sporadically in Israel, became epidemic, and between 1950 and 1957 its incidence never fell below 2.3 per 10 000; in 1950 the attack rate was 12.8 per 10 000. Vaccination with the Salk vaccine was begun in 1957. In 1958 another epidemic occurred, followed with great interest in all countries, as it was the first time that an opportunity had arisen to assess the amount of protection conferred by vaccination on a population of young children exposed to a serious epidemic. A. M. Davies, of the Hebrew University, Jerusalem, Israel, and his colleagues describe the situation over the past ten years, the organization of the vaccination campaigns, and the results achieved in the epidemic. The vaccine conferred some degree of protection, but less than might have been expected from experience elsewhere in older children.

In spite of failures to notify cases, defects in classification, and divergences in terminology, there can be no reasonable doubt that diarrhoeal diseases are still the leading cause of death in infants and young children in many countries of the world. Among the organisms responsible for these diseases are *Shigella*, *Salmonella*, *Escherichia coli*, and certain viruses. N. K. Ordway, of Yale University, USA, reviews the etiology of the various types of diarrhoea, notes that vaccination and chemoprophylaxis are ineffective, and concludes that prevention depends largely upon improvement in environmental sanitation. Treatment and prevention require more trained personnel, and the strengthening of the existing maternal and child health services and the development of new ones are of basic importance.[2]

Prophylactic measures against amoebic dysentery are needed in certain tropical and subtropical countries because of the prevalence of this disease. They are difficult, however, to organize at present, our knowledge of the disease being inadequate. I. de Carneri, of the Carlo Erba Institute for Therapeutic Research, Milan, Italy, indicates the

[1] A summary of this article appeared in *WHO Chronicle*, 1960, 14, 206.

[2] This paper was summarized in a general article on the diarrhoeal diseases which appeared in *WHO Chronicle*, 1960, 14, 179.

biological foundations of prophylaxis, which should be based on the study of the differences between the pathogenic species of amoeba and the discovery of a mass prophylactic drug that should possess a large number of properties difficult to combine. The author's list of subjects requiring study will be a stimulus to research workers.

Leptospirosis in the last few years has been shown to be more widely prevalent and biologically more complex than had been thought. Many parts of Latin America provide conditions favouring the development of leptospirae and hence human infection, and A. D. Alexander, of the Walter Reed Army Institute of Research, Washington, D.C., USA, attempts an analysis of their distribution in some countries of South and Central America. Serotypes found elsewhere are found in them, as well as other serotypes that appear to be new. To procure reliable data, diagnosis must be by serological methods, particularly by agglutination tests with multiple antigens, since infections with several serotypes are common.[3]

The classification of *Brucella* has been the subject of much controversy for some years, and several papers on it have appeared in the Bulletin. Phage typing, coming after biochemical and serological methods, has suddenly acquired considerable importance and joins the other recognized criteria of classification. Two notes deal with it. In the view of G. C. van Drimmelen, of the University of Pretoria, Union of South Africa, phage lysis seems to offer promise of being a better criterion for "species" differentiation than monospecific agglutination. But phages are subject to mutations of a magnitude yet to be determined, and their relationship to the virulence of the organism and to the epidemiology of brucellosis is still unknown. Lois M. Jones, of the University of Wisconsin, Madison, Wis., USA, has compared the results obtained by phage typing and by the usual classification methods in a large number of strains of different origin. Finally, M. S. Redfearn and D. T. Berman (also of the University of Wisconsin) give the results of typing by gel-diffusion, which they consider can be substituted for agglutination with absorbed serum as the serological criterion for identification of unknown cultures of smooth *Brucella*.

[3] A summary of this article appeared in *WHO Chronicle*, 1960, 14, 237.

MENTAL HEALTH

Classification of Mental Disorders by E. Stengel (Offprint from *Bulletin of the World Health Organization*, 1960, **21**, 601-663). Price: 3s. 6d., $0.60, Sw. fr. 2.—.

Psychiatrists disagree about the concepts upon which a classification of mental disorders should be based; hence the many classifications, and the frequent description of the same or similar conditions under a confusing variety of names. The effect of this diversity of classification has been to defeat attempts at comparing psychiatric observations and the results of treatment in different countries, or even in different centres of the same country.

In recent years the epidemiological approach to mental disorders has been more and more employed. To be used successfully and on a wide scale such an approach requires a common basic terminology and classification. As a first step towards this, the author of this paper examines critically the classifications in current use. He shows that some of the difficulties created by present-day lack of knowledge are surmountable by the use of "operational definitions", and he outlines the basic principles on which, he believes, a generally acceptable international classification could be constructed.

The paper reproduces 38 different classifications in detail, and contains a useful reference list.

MALARIA

Relationship between malarial parasitaemia and symptoms of the disease: a review of the literature—*Sir Gordon Covell*

Mitigation of the haemolytic effect of primaquine and enhancement of its action against exoerythrocytic forms of the Chesson strain of *Plasmodium vivax* by intermittent regimens of drug administration: a preliminary report—*Alf S. Alving, Charles F. Johnson, Alvin R. Tarlov, George J. Brewer, Robert W. Kellermeyer & Paul E. Carson*

Methaemoglobin reduction test: a new, simple, *in vitro* test for identifying primaquine-sensitivity—*George J. Brewer, Alvin R. Tarlov & Alf S. Alving*

Use of quinocide in treatment and prophylaxis of vivax malaria—*A. Y. Lysenko*

A field test for the estimation of chloroquine in urine—*Gerhard Fuhrmann*

Problems of epidemiology in malaria eradication—*P. Yekutiel*

A study of the blood-feeding patterns of *Anopheles* mosquitos through precipitin tests: results of collaborative work for the period 1955-59 and their application to malaria eradication programmes—*Division of Malaria Eradication, World Health Organization & Lister Institute of Preventive Medicine*

The significance of irritability, behaviouristic avoidance and allied phenomena in malaria eradication—*R. C. Muirhead-Thomson*

Résistance de comportement au DDT chez *A. labranchiae* au Maroc—*G. Sacca & Y. Guy*

Investigations on the mechanism of DDT resistance in certain anopheline mosquitos—*Albert S. Perry*

Gamma-BHC/Cereclor—a new, long-acting lindane formulation for malaria control—*K. S. Hocking, J. A. Armstrong & F. S. Downing*

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